



# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA



# Comprehensive Annual Financial Report

A Component Unit of the State of Oklahoma

Fiscal Year Ended June 30, 2018



# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

## **Mission Statement**

We collect, protect and grow assets to provide a secure retirement income for public education employees.

## **Vision**

The vision of Oklahoma Teachers Retirement System is to:  
Provide quality service to our clients in an efficient, economical manner,  
Provide our clients on-demand and accurate access to their personal financial information,  
Educate our clients about their retirement benefits, and  
Inform our clients about the financial status of Oklahoma Teachers Retirement System so they will be confident in our ability to provide their benefits.

## **Core Values**

We value the following in delivering our service:

Customer Service

Teamwork

Reputation

Adequate Funding

Competency

Ethical Behavior



# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

A Component Unit of the State of Oklahoma

Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2018

Tom Spencer  
Executive Director

Prepared by the Finance Department of the Teachers' Retirement System of  
Oklahoma

Teachers' Retirement System of Oklahoma

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# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA



## Introductory Section



TOM SPENCER  
EXECUTIVE DIRECTOR

MARY FALLIN  
GOVERNOR

STATE OF OKLAHOMA  
OKLAHOMA TEACHERS RETIREMENT SYSTEM

December 21, 2018

The Board of Trustees  
Teachers' Retirement System of Oklahoma  
2500 N. Lincoln Boulevard  
Oklahoma City, OK 73105

Dear Board of Trustees:

We are honored to present the 2018 Comprehensive Annual Financial Report (CAFR) of the Teachers' Retirement System of Oklahoma (the System) for the fiscal year ended June 30, 2018. The information included in this report not only defines our purpose, but represents our commitment to protecting the financial future of our active and retired clients. We accomplish this by monitoring and evaluating our daily operations as well as prudently managing the \$16.62 billion of net assets in the fund. The Teachers' Retirement System of Oklahoma is a component unit of the state of Oklahoma.

### **Profile of System**

Established by legislation, the System began operations on July 1, 1943. The System provides retirement allowances and other benefits to public education employees in the common schools, career technology centers, colleges and universities, and other local and state educational agencies of the state of Oklahoma.

The mission of the System is to collect, protect and grow assets to provide a secure retirement income for public education employees. The System also strives to provide outstanding customer service to all of our active and retired clients. All services provided by the staff are performed to meet these objectives.

### **Management Responsibility**

Management is responsible for maintaining a system of adequate internal accounting controls designed to provide reasonable assurance that the transactions are executed in accordance with management's general or specific authorization, and are recorded as necessary to maintain accountability for assets and to permit preparation of financial statements in accordance with generally accepted accounting principles. This system includes written policies and procedures. Responsibility for the preparation, accuracy, completeness and fairness of this presentation, including all disclosures, rests firmly with the System's management. To the best of our knowledge and belief, this financial report is complete and reliable in all material aspects.

The System maintains a comprehensive internal control framework designed to assure that assets are safeguarded from theft or misuse, transactions are completed accurately, and financial statements are



fair and reliable. Internal control is designed to provide reasonable assurance, but not absolute assurance, that these objectives are met. The concept of reasonable assurance recognizes first, that the cost of a control should not exceed the benefits likely to be derived, and second, the valuation of cost and benefits requires estimates and judgments by management. The System has its own internal audit program and uses a private firm retained by the Board of Trustees that answers directly to the Board. The firm not only analyzes financial issues and risk, but also provides advice on work flow and internal processes improvements.

The System operates according to an administrative budget approved annually by the Board. Although revenue is not appropriated from the state's General Revenue Fund, the budget is submitted to the Legislature as part of the Governor's recommended budget. The System operates under the same budgetary controls that apply to all state agencies.

The basic financial statements are prepared in accordance with generally accepted accounting principles as promulgated by the Governmental Accounting Standards Board. An independent auditing firm, Eide Bailly LLP, has audited the financial statements included in this report and its opinion letter is presented in the Financial Section of this CAFR. Readers are encouraged to review the Management's Discussion and Analysis (MD&A) in the Financial Section for an in-depth discussion of the financial statements and the cause and effect of market conditions, legislation and changes in operations affecting the System's financial results.

### **Economic Condition and Outlook**

The U.S. economy sustained healthy and steady growth in FY 2018. Real U.S. Gross Domestic Product (GDP) rose 2.9% for the fiscal year with positive growth in each of the four quarters. Further indicators of healthy domestic economic growth during FY 2018 included gains of 2.7% in average hourly earnings and a falling unemployment rate from 4.3% to 4%. (Sources: Bureau of Economic Analysis and Bureau of Labor Statistics).

As a whole, the increase in net position of TRS was due to investment gains as a result of further gains in equity markets during the System's FY 2018 extending gains from the prior year. Equity markets recorded generally strong positive returns during FY 2018. U.S. equities outpaced international equities for the year. Domestic equity broad index returns ranged from around 15% for large cap equities to more than 17% for small cap equities. Broad international equity index returns ranged from roughly 8% for large caps to 11% for small caps. Fixed income markets continued to face the headwind of the Federal Reserve raising short-term interest rates producing returns close to zero for the year. High yield bonds had a bit more resilience with index returns near 2.5%. Finally core real estate indices returned almost 7% and private equity returned more than 15%. (Source: AndCo Consulting).

Most investment consultants are not optimistic that their pension fund clients will continue to get high returns. Ten years ago the median public fund had an 8% assumed return for actuarial purposes. That median return assumption has fallen to 7.5%. (Source: National Association of State Retirement Administrators (NASRA)). TRS reduced its return assumption from 8.0% to 7.5% in FY 2016.

### **Investments**

For FY 2018, the System earned a 9.7% positive rate of return. Net investment income, including realized and unrealized gains and losses, was a positive \$1.5 billion compared to a positive \$2.0 billion for FY2017. The net position restricted for pensions totaled \$16.7 billion on June 30, 2018 compared to \$15.6 billion on June 30, 2017. These numbers include the amounts held in trust for members who participate in the Systems 403(b) Tax Sheltered Annuity Plan.

On June 30, 2018, the System's investment portfolio mix at market value was 22.2% fixed income, 58.5% equities, 4.7% master limited partnerships, 7.4% real estate, 6.7% private equity, and cash of .50%. As fiduciaries for the retirement funds, the Board of Trustees is responsible for investment of the funds under the prudent investor standard. This standard allows the System to allocate trust funds across a diversified group of asset classes. The Board of Trustees has elected to limit investments to stocks and bonds, Treasury Bills and Notes, commercial paper, foreign currency exchange contracts, private debt and private equity, master limited partnerships and bank deposits collateralized by U.S. Government securities.

Returns in virtually every category were good. The TRS Domestic Equity composite returned 15.49% and International Equities came in at 10.64%. Total fixed income returned 0.96%, however high yield bonds returned 2.69%. The alternate asset classes returned a composite 7.27% led by private equity at 15.4% and opportunistic fixed income at 9.86%. A summary of the System's investment activities during fiscal year 2018 and historic performance results is presented in the Investment Section.

### **Revenue and Funding**

The major sources of revenue for the System are member contributions, employer contributions, dedicated revenue from the state of Oklahoma, and investment income.

Active member contributions for fiscal year 2018 were \$312.8 million, which represents 7.0% of covered payroll. This compares to \$292.9 million for the fiscal year ending June 30, 2017. Member contributions include direct payments by members to reestablish service credit, purchase Oklahoma service, out-of-state or military service, and payments required to qualify for the Education Employees Service Incentive Plan (EESIP).

Contributions from local employers, the state of Oklahoma, and federal sources for fiscal year 2018 totaled \$760.6 million, compared to \$705.2 million for fiscal year 2017. Contributions from local school districts and federal revenues increased by \$16.1 million as the state's contribution increased by \$39.3 million.

A properly funded pension plan continues to be the Board's most significant challenge. As of June 30, 2018, 73.5% of the System's actuarial liabilities were covered by the net position of the Plan. This is an increase from the 70.1% funded ratio reported for June 30, 2017. The increase is due to significant gains on the market value of assets. Based upon the current statutory contribution schedule, the funding period is 14 years. This is a three year decrease from the 17 year funding period in 2017.

### **Expenses**

The System's expenses are attributable to making retirement benefit payments including health insurance subsidies, death and survivor benefits, refunds of member contributions and administrative expenses. During fiscal year 2018, the System paid \$48.7 million more in retirement, survivor and insurance benefits than in the preceding year, \$211,000 less in refunds to active clients who terminated accounts, and \$2.2 million less in distributions from the Systems 403(b) Tax Sheltered Annuity Plan. The increase in retirement and insurance benefits is attributed to a net increase in the number of retired members and the average benefit payments. Administrative expenses increased \$156.9 thousand primarily due to an increase in payroll costs associated with positions being fully staffed throughout the year.

### **Awards and Acknowledgements**

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Teachers' Retirement System of Oklahoma for its comprehensive annual financial report for the fiscal year ended June 30, 2017. This is

the twenty-fifth consecutive year the System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, the System must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for a period of one year. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

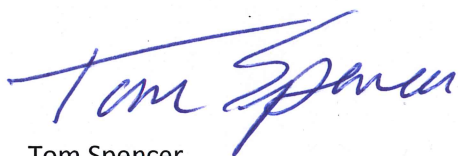
In addition to the award for the CAFR the System was awarded its third consecutive Certificate of Achievement for the Popular Annual Finances Report (PAFR). The purpose of this report is to be readily accessible and easily understandable to the general public and other interested parties without a background in public finance.

This report reflects the combined efforts of the System's staff under the leadership of the Board of Trustees. It is intended to provide complete and reliable information as a basis for making management decisions, determining compliance with legal provisions, and as a means for determining responsible stewardship of the assets contributed by the members and their employers.

Notice is being mailed to the Governor, members of the Oklahoma Legislature, and the Oklahoma State Pension Commission that the CAFR is available on our website at [www.ok.gov/TRS](http://www.ok.gov/TRS).

We would like to take this opportunity to express our gratitude to you, the staff, the advisors, and other people who have worked so diligently to assure the continued successful operation of the Teachers' Retirement System of Oklahoma.

Respectfully submitted,



Tom Spencer  
Executive Director



Sam Moore, CPA  
Chief Financial Officer

## **TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA**

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2500 North Lincoln Boulevard, 5<sup>th</sup> Floor  
Oklahoma City, Oklahoma 73105

Mailing Address:  
Post Office Box 53524  
Oklahoma City, Oklahoma 73152-3524  
(405) 521-2387

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### **BOARD OF TRUSTEES**

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**Dr. Gary Trennepohl**, Chairman

**Mr. Vernon Florence**, Vice-Chairman

**Ms. Judie M. Harris**, Secretary

**Mr. Bill Bentley**, (Nonvoting)

**Mr. Roger Gaddis**, CPA/CFP

**Ms. Jill Geiger**, Designee of Denise Northrup the Director of OMES

**Ms. Joy Hofmeister**, State Superintendent of Public Instruction

**Ms. Christa Hughes**

**Ms. Shareé Madsen**

**Mr. Ken Miller**, Oklahoma State Treasurer

**Mr. Kevin Moore**

**Dr. Myron Pope**

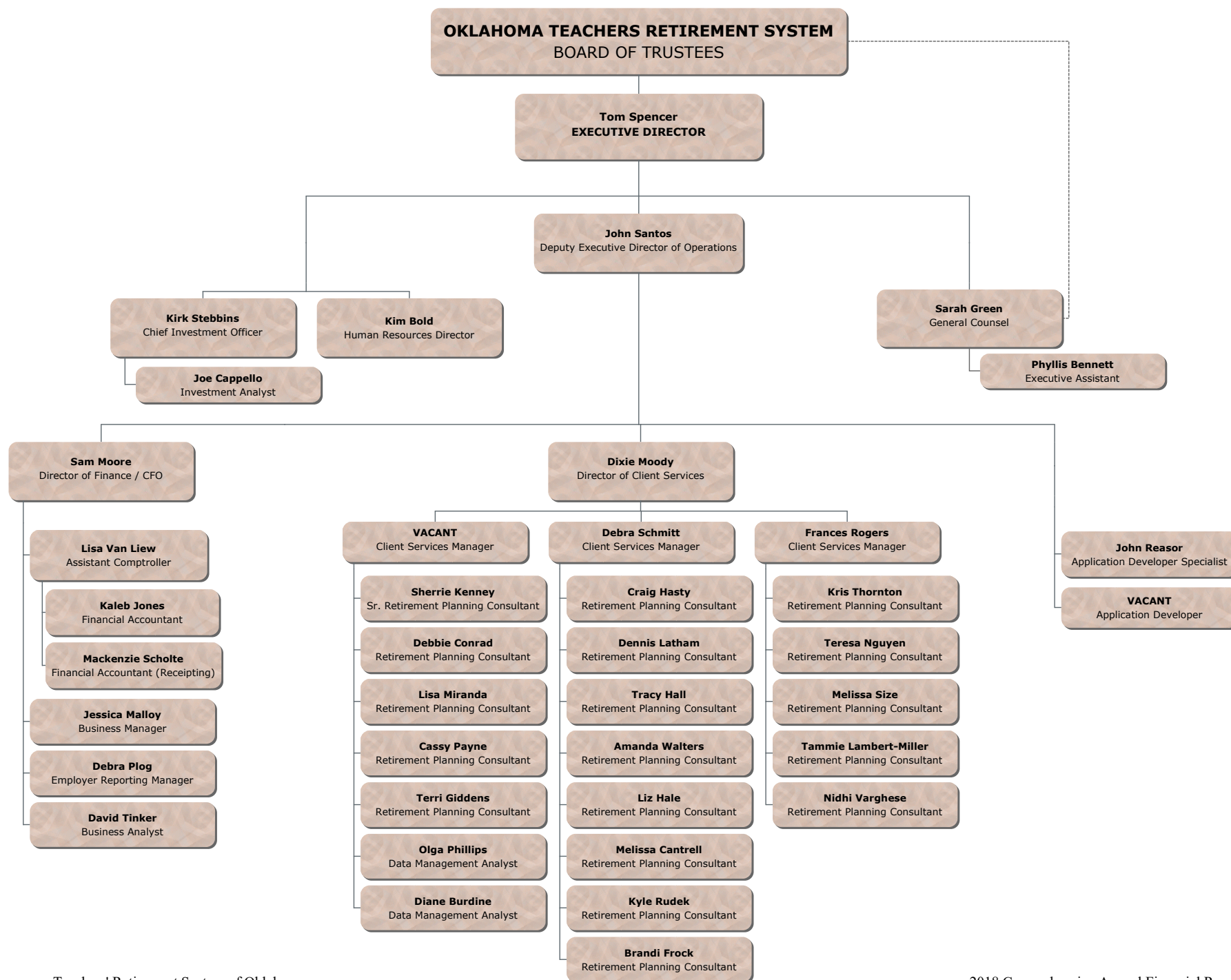
**Mr. William L. "Bill" Peacher**

**Dr. Gregory Z. Winters**, Designee of Marcie Mack the Director of the State Department of Career Tech

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## **TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA**

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## TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

### Professional Consultants

#### Outside Legal Counsel

Ice Miller  
1 American Sq. Ste. 2900  
Indianapolis, IN 46282

Phillips Murrah  
Corporate Tower, Thirteen Floor  
101 N. Robinson Ave.  
Oklahoma City, OK 73102

#### Internal Auditors

Stinnett & Associates  
825 N. Broadway Avenue  
Oklahoma City, OK 73102

BKD, LLP  
Two Leadership Square  
South Tower, Suite 600  
211 N. Robinson Avenue  
Oklahoma City, OK 73102

#### Actuary

Gabriel, Roeder, Smith & Company  
5605 N. MacArthur  
Suite 870  
Irving, TX 75038-2631

#### Investment Consultants

AndCo Consulting  
624 South Boston Avenue  
Suite 735  
Tulsa, OK 74119

#### External Auditor

Eide Bailly LLP  
877 West Main  
Street Suite 800  
Boise, ID 83702-5838

#### Investment Custodian

Northern Trust Corporation  
50 South La Salle Street  
Chicago, IL 60603

The schedule of Investment Expenses and Professional Consultant Fees in the Other Supplementary Information Section and the Schedule of Investment Fees (pgs. 70-71) & Broker Commissions (pgs. 73-76) in the Investment Section contain additional information regarding professional advisors and consultants.



# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

## Plan Summary 2017-2018

### BEGINNINGS

The Teachers' Retirement System of Oklahoma (the System) was established July 1, 1943, to provide retirement allowances and other specified benefits for qualified employees of state-supported educational institutions.

### ADMINISTRATION

A 15 member Board of Trustees oversees the administration of the System and acts as fiduciary for investing its funds.

### CONTRIBUTIONS

As a member of the System, your contribution rate is 7% of your total compensation (salary and your fringe benefits).

Statutes also require employers to contribute a percentage of applicable employee earnings. The employer contribution rate for K-12 school districts, career-techs, and junior colleges is 9.5%. The employer contribution rate for comprehensive universities (University of Oklahoma and Oklahoma State University and their entities) and the state's four-year regional universities is 8.55%.

### MEMBERSHIP

Oklahoma statutes require classified personnel to be members of the System. The definition of classified personnel in 70 O.S. § 17-101 includes teachers and other certified employees of common schools, faculty and administrators in public colleges and universities, and administrative personnel of state educational boards and agencies. Membership is optional for all other regular employees of public educational institutions who work at least 20 hours per week.

Employees of a charter school may join the System if the Teachers' Retirement System Board of Trustees approves the school's application for membership.

New employees at the University of Oklahoma, OU Health Sciences Center, and Oklahoma State University have the option to participate in an alternate retirement plan provided by the universities. Employees choosing the alternate retirement plan are not eligible to participate in the System as long as they remain employees of the universities.

### SERVICE CREDIT

Service credit of up to 1 year is earned for every year of full-time employment. Fractional service is earned for periods of employment that are less than 8 months or for part-time employment. Members may purchase credit for out-of-state service, adjunct service, substitute teaching service, sabbatical leave, military service, service with certain Oklahoma governmental entities, incentive credit, and employment in Oklahoma schools before your date of membership.

Retiring members may count up to 120 days of unused accumulated sick leave toward an additional year of service credit. Unused sick leave of less than 120 days is granted a fractional year of service credit.

### RETIREMENT ANNUITY

Members who joined the System prior to November 1, 2017 are fully vested after five years of contributory Oklahoma membership service. Those who join on or after November 1, 2017 are fully vested after seven years of contributory Oklahoma membership service and may choose to take an early, reduced retirement benefit, or stay to qualify for a regular, unreduced retirement benefit. A vested member is eligible to receive a retirement benefit when one of the following requirements is met:

Age 62 or Combination 80. Those who joined the System prior to July 1, 1992 may retire with an unreduced benefit at age 62 or when the client's age and years of creditable service total 80 points. The highest three salaries are used in the calculation of the benefit. A reduced annuity is available at the minimum age of 55.

Age 62 or Combination 90. Those who joined the System after July 1, 1992 and before November 1, 2011 may retire with unreduced benefits at age 62 or when the client's age and years of creditable service total 90 points. Those who qualify under Combination 90 use the highest consecutive five contributory salaries to calculate their benefit in the retirement formula. A reduced annuity is available at the minimum age of 55.

Age 65 or Combination 90 at Age 60. Those who joined the System on or after November 1, 2011 may retire with an unreduced benefit at age 65 or when the client's age is at least 60 and years of creditable service total at least 90 points. Those who qualify under this rule use the highest consecutive five contributory salaries to calculate their benefit in the retirement formula. A reduced annuity is available at the minimum age of 60.

The Teachers' Retirement System of Oklahoma is a governmental defined benefit plan under Section 401(a) of the Internal Revenue Code. The retirement benefits paid to our members are not determined by the market value of their retirement account, but rather by a formula. The formula includes years of service and highest average salary multiplied by a 2% computation factor.

The final average salary is not limited to the highest average salary defined under the Rule of 80 (highest three salaries) or Rule of 90 (highest five consecutive salaries), but may include any years previously capped.

The Education Employees Service Incentive Plan (EESIP) provides the opportunity for capped years to be diminished by two years for every one year worked beyond the full retirement eligibility date. If salaries earned prior to July 1, 1995 are greater than \$40,000, there will be a cost to participate in EESIP. Clients retiring from a four year university, college or other related entity are not eligible to participate in this plan.

If a member works for a comprehensive university (OU/OSU) or other associated entity, the retirement benefit calculation may involve a multi-step process. First, the capped average salary prior to July 1, 1995 is determined. Next the capped average salary between July 1, 1995 and June 30, 2007 is determined. Finally, years of service that did not meet the caps as well as service credit earned after July 1, 2007, will be incorporated into the retirement benefit formula using the highest average of actual total compensation, not to exceed the IRS compensation limits. There may be as few as one average salary or as many as four weighted averages to determine the final average salary used in the final benefit calculation.

Each of the Systems' five retirement options provides a lifetime benefit to the member. After the member's death, the designated beneficiary(ies) receive either a lump-sum payment or continued payments to one beneficiary, depending upon the elected option's provisions.

### DISABILITY BENEFITS

Members may qualify for disability retirement benefits if a medical condition keeps them from performing their regular job duties. A member may be considered for a disability retirement benefit if he or she is active and has at least 10 years of contributory service, a disability retirement application detailing the medical condition (which must have

existed while employed by the public schools of Oklahoma) is received, and an application is approved by the System's Medical Review Board.

If a member is awarded Social Security Disability benefits, the member may receive disability benefits with the System if the disability is incurred while employed by the public schools and the System is provided with proof of the Social Security award.

### HEALTH INSURANCE BENEFIT

If members have at least 10 years of creditable service and retire or terminate employment, they may elect to continue coverage in the insurance program the employer provides to active employees.

If members are not enrolled in the state plan, coverage is subject to the provisions of the plan in which they are enrolled.

Dependent and dental coverage is available if the member is enrolled in the State and Education Employees Group Health and Dental Insurance Plan.

Once a member begins receiving a monthly annuity, Teachers' Retirement System of Oklahoma will pay the first \$100 to \$105 of monthly premiums for the member but not for dependents. The amount paid by the System is determined by the member's total service and average salary at retirement.

If members have fewer than 10 years of employment, they have certain rights under federal law to continue health insurance coverage after employment ends. Specific information about continued coverage may be requested from the employer or the Employees Group Insurance Division of the Office of Management and Enterprise Services before termination.

### SURVIVOR BENEFITS

Members' designated beneficiaries or estates are entitled to survivor benefits if the members are active in-service or retired at the time of their death.

If a member is an active in-service member at the time of death, the beneficiary(ies) will receive an \$18,000 death benefit, plus the contributions in the member's account and interest on those contributions. "Active in-service" is defined in the System's rules, but generally means a member currently employed by an Oklahoma public education institution. If a member dies, and the member is an active in-service member who qualified for service retirement and has one designated primary beneficiary, he or she may choose a monthly benefit instead of the lump-sum payment.

When an inactive member dies, the beneficiaries receive the amount of the contributions in the member's account, plus interest on those contributions, but will not qualify for the \$18,000 death benefit or the monthly retirement benefit payment payable to the surviving beneficiary of active in-service members.

If a retiree dies, the beneficiaries or estate will receive a \$5,000 death benefit, plus the survivor benefits provided by retiree's chosen retirement plan option. Certain plan options provide surviving beneficiaries with a continuing monthly retirement benefit.

### WITHDRAWING CONTRIBUTIONS

If a member leaves a job that was qualified for membership, the member may request a refund of his or her contributions any time after the last day on that job. The member will be eligible to receive the refund four months after termination. The refund includes all member contributions, even if these contributions were made on the member's behalf by the employer, plus any applicable portion of interest earnings. When a member accepts a refund, all service credit is forfeited.

If a member returns to qualifying employment, the amount of the withdrawal may be redeposited after contributing to the System for 12 months.

Redepositing withdrawn contributions reinstates the initial membership date. If withdrawn contributions are not redeposited, the official membership date will be the date the member rejoined the System.

If the member redeposits, the entire amount withdrawn must be repaid to the System. In addition, 10% simple interest must be redeposited on the withdrawn amount for each year the account was withdrawn. This amount may be paid in one lump sum or through installment payments for up to 60 months.

Only an optional member (support personnel) can terminate membership in the System without terminating employment. If an optional member withdraws his or her account without leaving employment, the IRS requires that pre-tax contributions remain on deposit with the System and cannot be refunded until the member leaves employment.

If a member continues to work for the employer after terminating membership, the member can rejoin the System only under special provisions of an Internal Revenue Service private letter ruling requiring a period of non-membership and loss of the right to redeposit withdrawn service or purchase prior service credits. In this case, the member would become a new member as of the date he or she resumes making contributions to the System.

A member may also leave the contributions in his or her account. If a member is vested (have at least five or seven years of Oklahoma service), the account will continue earning interest until the member withdraws it or begins drawing a retirement benefit. If a member is not vested, the account will continue earning interest for five years, unless withdrawn before then.

### THE 403(b) TAX SHELTERED ANNUITY PLAN

The System sponsors a tax sheltered annuity program qualified under § 403(b) of the Internal Revenue Code. A member may deposit funds into this plan if the member's local Board of Education or other governing board adopts a resolution making the plan available to its employees.

The tax sheltered annuity program was managed internally since its inception in 1964. In July 2009, the Board of Trustees hired Voya Financial Inc. to be the service provider for the 403(b) Plan.

Under the new plan, participants may access their accounts 24 hours a day by phone or the internet. Customer service representatives are available each weekday from 7:00 am to 8:00 pm. The investments are flexible and diversified with fifteen options to choose from.

The plan has the comprehensive educational strategy developed by Voya and a dedicated representative from Voya is available to meet with a participant at least annually to discuss retirement goals and needs.

### RIGHTS AND RESPONSIBILITIES

Teachers' Retirement System of Oklahoma publications provide answers to general questions. A member is responsible for resolving any questions about his or her retirement account. Members are entitled to counseling from the staff concerning any questions they have about their retirement account. The System will not be held accountable for information that is contrary to statutes or administrative rules, regardless of who provides that information.

For details of how statutes and administrative rules may affect a retirement account, contact

Teachers' Retirement System of Oklahoma  
Mailing Address  
PO Box 53524  
Oklahoma City, OK 73152-3524  
  
Street Address  
Oliver Hodge Building  
2500 N. Lincoln Blvd. – 5<sup>th</sup> Floor  
Oklahoma City, OK 73105  
  
Phone Numbers  
405-521-2387 (OKC Area)  
877-738-6365 (Toll Free)  
  
Website:  
<http://www.ok.gov/TRS>

This Plan Summary provides general information summarizing the basic benefits available to members of the System. If conflict arises between information contained in this summary and state statutes or official Teachers' Retirement System of Oklahoma rules, the law and/or rule takes precedence.

Revised 11/2018





Government Finance Officers Association

**Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting**

Presented to

**Oklahoma Teachers Retirement System**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**June 30, 2017**

*Christopher P. Morrell*

Executive Director/CEO

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# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA



## Financial Section



## Independent Auditor's Report

To the Board of Trustees  
Teachers' Retirement System of Oklahoma  
Oklahoma City, Oklahoma

### Report on the Financial Statements

We have audited the accompanying financial statements of the Teachers' Retirement System of Oklahoma (the System), a component unit of the state of Oklahoma, which comprise the statement of fiduciary net position as of June 30, 2018, and the related statement of changes in fiduciary net position, for the year then ended, and the related notes to the financial statements.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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## Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the statement of fiduciary net position of the Teachers' Retirement System of Oklahoma, as of June 30, 2018, and the respective changes in fiduciary net position thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

### *Prior-Year Comparative Information*

We have previously audited the System's June 30, 2017 financial statements, and we expressed an unmodified opinion on the statement of fiduciary net position and the statement of changes in fiduciary net position in our report dated October 20, 2017. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2017, is consistent, in all material respects, with the audited financial statements from which it has been derived.

## Alternative Investments

As discussed in Notes 2 and 3 to the financial statements, total system investments include investments valued at \$2,585,808,233 (13.7% of total assets), as of June 30, 2018, whose fair values have been estimated by management in the absence of readily determinable values. Management's estimates are based on information provided by the fund managers or the general partners. Our opinion is not modified with respect to this matter.

## Other Matters

### *Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and the required supplementary information, as referenced within the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### *Other Information*

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements as a whole. The other supplementary information is presented for purposes of additional analysis and is not a required part of the financial statements.

The additional supplementary information accompanying financial information listed as other supplementary information, as referenced within the table of contents, are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the accompanying financial information listed as supplemental information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The introductory, investment, actuarial and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

A handwritten signature in black ink that reads "Eric Sallie LLP". The signature is written in a cursive, flowing style.

October 19, 2018  
Oklahoma City, Oklahoma

**Management's Discussion and Analysis  
Teachers' Retirement System of Oklahoma  
June 30, 2018 and 2017**

Management is pleased to present this discussion and analysis of the financial activities of the Teachers' Retirement System of Oklahoma ("TRS" or the "System") for the years ended June 30, 2018 and 2017. The System is responsible for administering retirement benefits for the following plans: an Internal Revenue Code (IRC) section 401(a) defined benefit plan (401(a) Plan), a 403(b) defined contribution Plan, and an IRC Section 401(h) medical supplement defined benefit plan, (OPEB Plan), (collectively "the Plans"). The 401(a) Plan is available for all educational employees of the state of Oklahoma. The 401(h) Plan is available for all eligible members. Finally, the 403(b) Plan is a tax-advantaged retirement savings plan also available to all educational employees of the State.

The System was established on July 1, 1943, for the purpose of providing these retirement benefits and other specific benefits for qualified persons employed by public educational institutions. The main purpose of the System is to provide a primary source of lifetime retirement benefits relative to years of service at the time of retirement. It is the objective of the System to provide these benefits in a prudent, responsible, and cost-effective manner. Plan net assets are used to pay current and future benefits to retired clients.

This discussion and analysis is intended to serve as an introduction to the System's basic financial statements. TRS's basic financial statements are comprised of three components: 1) statement of fiduciary net position, 2) statement of changes in fiduciary net position, and 3) notes to the financial statements. This report also contains required supplementary information in addition to the basic financial statements themselves.

The Statement of Fiduciary Net Position presents information on all of the System's assets and liabilities, with the difference between these reported as net position restricted for pensions and OPEB. Over time, increases or decreases in plan net position may serve as a useful indicator of whether the financial position of the System is improving or deteriorating. Information relating to the System's ability to meet the cost of future benefit payments is not shown on the statement of fiduciary net position but is located in both the notes to the financial statements and the required supplementary information.

The Statement of Changes in Fiduciary Net Position presents information showing how the System's net position changed during the most recent fiscal year. Changes in net position are recognized using the accrual basis of accounting, in which expenses are recorded when the liability is incurred and revenues are recorded in the accounting period in which they are earned and become measurable.

The Notes to the Financial Statements are critical to the reader's understanding of the financial status of the System. These notes include a description of the System, details on the cash and investments of the System, as well as contribution and benefit information.

The Required Supplementary Information (RSI) presents various required schedules for pensions and OPEB. Other supplementary information includes the Schedule of Administrative Expenses, the Schedule of Investment Expenses, and the Schedule of Professional/Consultant Fees. These schedules provide additional analysis of the information provided in the financial statements.

**Management's Discussion and Analysis  
Teachers' Retirement System of Oklahoma  
June 30, 2018 and 2017**

The following are condensed schedules of financial information about the Plans in the System for the years ended June 30, 2018, 2017 and 2016 and the results of the years then ended:

**Condensed Financial Information**

Fiduciary net position as of June 30:

	OPEB Plan	401(a) Plan	403(b) Plan	System Total		
				2018	2017	2016 *
<b>Assets</b>						
Cash	\$ -	\$ 14,647,016	\$ -	\$ 14,647,016	\$ 6,982,258	\$ 19,857,301
Receivables	8,010,420	328,630,022	-	336,640,442	234,896,886	389,393,726
Long- and short-term investments, at fair value	477,260,605	16,141,192,525	166,573,895	16,785,027,025	15,623,835,941	14,058,889,353
Capital assets, net	130,994	4,369,129	-	4,500,123	4,293,304	4,072,745
Total investments and other assets	485,402,019	16,488,838,692	166,573,895	17,140,814,606	15,870,008,389	14,472,213,125
Securities lending institutional daily assets fund	50,357,509	1,679,606,034	-	1,729,963,543	1,699,984,799	1,624,015,378
Total assets	535,759,528	18,168,444,726	166,573,895	18,870,778,149	17,569,993,188	16,096,228,503
<b>Liabilities</b>						
Investment settlements and other liabilities	1,345,858	343,765,899	-	345,111,757	232,211,101	478,182,808
Payable under securities lending agreement	50,357,509	1,679,606,034	-	1,729,963,543	1,699,984,799	1,624,015,378
Total liabilities	51,703,367	2,023,371,933	-	2,075,075,300	1,932,195,900	2,102,198,186
<b>Net Position</b>						
Net position restricted for pensions and OPEB	\$ 484,056,161	\$ 16,145,072,793	\$ 166,573,895	\$ 16,795,702,849	\$ 15,637,797,288	\$ 13,994,030,317

\* 2016 column has not been restated for the effect of the adoption of GASB Statement No. 74



**Management's Discussion and Analysis  
Teachers' Retirement System of Oklahoma  
June 30, 2018 and 2017**

**Changes in fiduciary net position for the year ended June 30:**

	OPEB Plan	401(a) Plan	403(b) Plan	System Total		
				2018	2017	2016 *
<b>Additions:</b>						
Member contributions	\$ -	\$ 312,866,576	\$ -	\$ 312,866,576	\$ 292,949,337	\$ 294,459,091
Employer contributions	2,912,563	413,068,467	-	415,981,030	403,256,970	409,753,221
Matching contributions	-	26,437,350	-	26,437,350	23,027,846	25,787,244
Dedicated tax revenue	-	318,172,751	-	318,172,751	278,924,055	289,884,752
Member tax shelter contributions	-	-	1,723,454	1,723,454	2,548,206	2,222,812
Net investment income gain (loss)	44,529,318	1,448,090,255	7,941,562	1,500,561,135	2,011,242,293	(362,477,638)
Security lending net income	231,107	7,515,593	-	7,746,700	8,705,649	7,870,757
Total additions	47,672,988	2,526,150,992	9,665,016	2,583,488,996	3,020,654,356	667,500,239
<b>Deductions:</b>						
Benefit payments	36,963,620	1,323,912,271	-	1,360,875,891	1,312,125,733	1,257,276,705
Refund of member contributions and other payments	-	42,940,983	17,555,113	60,496,096	60,707,115	55,841,270
Administrative expenses	11,427	4,200,021	-	4,211,448	4,054,537	4,458,338
Total deductions	36,975,047	1,371,053,275	17,555,113	1,425,583,435	1,376,887,385	1,317,576,313
Net increase (decrease) in net position	10,697,941	1,155,097,717	(7,890,097)	1,157,905,561	1,643,766,971	(650,076,074)
<b>Net Position Restricted for Pensions and OPEB</b>						
Beginning of year as restated	473,358,220	14,989,975,076	174,463,992	15,637,797,288	13,994,030,317	14,644,106,391
End of year	\$ 484,056,161	\$ 16,145,072,793	\$ 166,573,895	\$ 16,795,702,849	\$ 15,637,797,288	\$ 13,994,030,317

\* 2016 column has not been restated for the effect  
of the adoption of GASB Statement No. 74

**Management's Discussion and Analysis  
Teachers' Retirement System of Oklahoma  
June 30, 2018 and 2017**

### Financial Highlights and Analysis

The pension system's net position increased 7.7 percent and the OPEB net position increased 2.3 percent. The increases were due to positive investment returns. The domestic equity portfolio earned a net return of 15.49 percent. The international equity portfolio was not as strong due to weaker foreign currency, but still earned a solid return of 10.64 percent. The fixed income portfolio earned a net return of 0.96 percent as it struggled to overcome the headwind of higher interest rates. The System's core and non-core real estate portfolios earned net returns of 6.98 percent and 5.14 percent, respectively. Master Limited Partnerships in the energy sector were the System's weakest performers returning a negative net return of (2.03) percent. The System's private equity and private credit portfolio earned net returns of 15.43 percent and 9.86 percent respectively. In total the portfolio earned a net return of 9.69 percent exceeding both the portfolio's policy benchmark return of 8.13 percent and the Fund's actuarial assumed return of 7.5 percent.

	OPEB Plan 2018	401(a) Plan 2018	403(b) Plan 2018	System Totals		
				2018	2017	2016
Plan net position	\$ 484,056,161	\$ 16,145,072,793	\$ 166,573,895	\$ 16,795,702,849	\$ 15,697,797,288	\$ 13,994,030,317
Yearly % change	2.3%	7.7%	-4.5%	7.4%	11.7%	-4.4%

The total investment return for the five year period of 9.5 percent is above the 7.5 percent actuarial assumed rate of investment returns.

Total Returns	1 Year	3 Year	5 Year	10 Year
2018	10.0%	7.5%	<b>9.5%</b>	8.6%
2017	15.3%	5.4%	<b>11.0%</b>	6.8%
2016	-2.0%	7.5%	<b>8.3%</b>	7.1%

Benefit payments increased 3.7 percent in FY2018 compared to FY2017. The increase is a result of a 2.3 percent increase in the number of 401(a) Plan benefit recipients and a 1.4 percent increase in the average monthly benefit. Benefit payments to retired members in FY2018 exceeded contributions from members and employers by \$346 million, or a ratio of 1.32 to 1. A ratio of more than one signifies that the System is receiving fewer contributions than it pays out in benefits. In a mature pension system like TRS a significant percentage of the benefits is paid out of investment earnings that are not reflected in this ratio. The following table reflects the ongoing employer and member contributions.

	OPEB Plan 2018	401(a) Plan 2018	403(b) Plan 2018	System Totals		
				2018	2017	2016
Member contributions	\$ -	\$ 312,866,576	\$ 1,723,454	\$ 314,590,030	\$ 292,949,337	\$ 294,459,091
Employer contributions	2,912,563	413,068,467	-	415,981,030	403,256,970	409,753,221
State matching funds	-	26,437,350	-	26,437,350	23,027,846	25,787,244
Dedicated tax revenue	-	318,172,751	-	318,172,751	278,924,055	289,884,752
Total contributions	\$ 2,912,563	\$ 1,070,545,144	\$ 1,723,454	\$ 1,075,181,161	\$ 998,158,208	\$ 1,019,884,308
Benefit payments	\$ 36,963,620	\$ 1,323,912,271	\$ -	\$ 1,360,875,891	\$ 1,312,125,733	\$ 1,257,276,705
Refund of contributions	-	42,940,983	17,555,113	60,496,096	60,707,115	55,841,270
Total payments	\$ 36,963,620	\$ 1,366,853,254	\$ 17,555,113	\$ 1,421,371,987	\$ 1,372,832,848	\$ 1,313,117,975
Ratio of benefit payments to contributions	12.69:1	1.28:1	10.19:1	1.32:1	1.38:1	1.29:1

**Management's Discussion and Analysis  
Teachers' Retirement System of Oklahoma  
June 30, 2018 and 2017**

### Financial Highlights and Analysis (Continued)

The number of pension benefit recipients increased 2.25 percent in FY2018 as compared to 2.8 percent in FY2017 and 3.0 percent in FY2016. This is comparable to fiscal year FY2017 and FY2016. There was a net increase of 1,405 and 1,711 members that retired for FY 2018 and FY2017, respectively. The number of OPEB benefit recipients increased 1.70 percent in FY2018. There was an increase of 965 members that retired and opted to receive the OPEB benefit.

	OPEB Plan 2018	401(a) Plan 2018	OPEB Plan 2017	401(a) Plan 2017	401(a) Plan 2016
Benefit recipients	57,866	63,796	56,901	62,391	60,680
Yearly % change	1.70%	2.25%	N/A	2.80%	3.00%
Net increase	965	1,405	N/A	1,711	1,751

The following table reflects the average monthly benefit for service retirements. While the table above reflects an increase in the number of retirees in the past year of 2.25 percent, the table below reflects the average benefit per retiree has only increased by 1.4 percent in FY2018 as compared to 1.9 percent and 1.4 percent in FY2017 and FY2016 respectively. The increase in benefit recipients was 0.85 percent higher in FY2018 as compared to 0.9 percent in FY2017 and 1.6 percent in FY2016 than the increase in average benefit payment below.

	2018	2017	2016
Average monthly benefit	\$ 1,705	\$ 1,681	\$ 1,650
Yearly % change	1.4%	1.9%	1.4%

The following table shows the ratio of active members to retired members of the System is 1.39 to 1 in FY2018, compared to 1.41 to 1 in FY2017, and 1.49 to 1 in FY2016. This change is caused by the longevity of the Plan's retiree population and an active population that has decreased due to a statewide teacher shortage. Fiscal Year 2018 had a slight increase in active members. Contributing members increased by 739 in FY2018 and decreased by 2,372 in FY2017 while benefit recipients increased by 1,405 in FY2018 and 1,711 in FY2017.

	401(a) Plan 2018	401(a) Plan 2017	2016
Members contributing	88,534	87,795	90,167
Yearly % change	0.8%	-2.6%	-0.2%
Benefit recipients	63,796	62,391	60,680
Yearly % change	2.25%	2.80%	3.00%
Ratio contributing/retired	1.39	1.41	1.49

The following table includes the ratio of the 401(a) plan fiduciary net position to the total 401(a) plan liability increased by 3.42 percent in FY2018. The OPEB plan fiduciary net position to the total OPEB plan liability increased by 5.01 percent in FY2018. The funded ratios of the 401(a) plan and the OPEB plan are 72.74 percent and 115.41 percent respectively for FY2018.

Under GASB Statement 67 the 401(a) plan ratio above represents the Total Pension Liability compared to the Plan's total net position at fair value. Prior to GASB Statement 67 this ratio was calculated using the actuarial value of the Plan's net position.

Under GASB Statement 74 the ratio above represents the Total OPEB Liability compared to the Plan's total net position at fair value.

**Management's Discussion and Analysis  
Teachers' Retirement System of Oklahoma  
June 30, 2018 and 2017**

**Financial Highlights and Analysis (Continued)**

	OPEB Plan 2018	401(a) Plan 2018	OPEB Plan 2017	401(a) Plan 2017	2016
Total pension liability	\$ -	\$ 22,196,455,995	\$ -	\$ 21,625,384,047	\$ 22,193,244,472
Total OPEB liability	419,430,692	-	428,764,003	-	-
Fiduciary net position -Pensions or similar	484,056,162	16,145,072,793	473,358,220	14,989,675,076	13,814,102,655
Employers' net pension liability	-	6,051,388,202	-	6,635,708,971	8,379,141,817
Employers' net OPEB asset	(64,625,470)	-	(44,594,217)	-	-
Ratio of Employers' fiduciary net position to applicable liabilities	115.41%	72.74%	110.40%	69.32%	62.24%

Based on the actuarial value of assets or the market value of assets at the end of FY 2018, and the projected continuation of contribution rates and other revenue, and all assumptions hold constant the Plan's actuary projects a "funding period" of 14 years.

In June of 2018 TRS purchased the Harvey Parkway building located on the northwest corner of NW 63<sup>rd</sup> and N. Harvey Place in Oklahoma City. The six-story office building was purchased as a real estate investment, but TRS also plans to relocate the TRS office to the new building when lease space becomes available.

**System Amendments**

The Legislature authorized a one-time payment for many System retirees in HB 1340. This bill provides a "stipend" to members who were retired as of October 1, 2013. The amount will be 2% of the gross annual benefit up to a maximum of \$1,000 to the System's retirees. It provides a minimum stipend of \$350 for retirees who had at least 20 years of service credit as of their retirement. The law takes effect October 1, 2018.

The System's actuary does not believe any of these amendments will have any significant financial impact to the System.

**Requests for Information**

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System. Questions concerning any of the information provided in this report or requests for additional information should be addressed to the Executive Director of the Teachers' Retirement System of Oklahoma, P.O. Box 53524, Oklahoma City, Oklahoma 73152 or (405) 521-2387.

## Teachers' Retirement System of Oklahoma

**Statement of Fiduciary Net Position**  
**June 30, 2018 (With Comparative Totals as of June 30, 2017)**

	OPEB Plan	401(a) Plan	403(b) Plan	Totals June 30,	
				2018	2017
<b>Assets</b>					
Cash	\$ -	\$ 14,647,016	\$ -	\$ 14,647,016	\$ 6,982,258
Short-term investments	12,674,210	422,730,996	-	435,405,206	289,561,114
Accrued interest and dividends receivable	2,140,485	71,392,941	-	73,533,426	56,208,719
Member contributions receivable	-	23,522,906	-	23,522,906	16,406,022
Employer contributions receivable	1,153,770	38,482,441	-	39,636,211	25,896,475
Receivable from the State of Oklahoma	-	37,930,478	-	37,930,478	31,548,869
Due from brokers for securities sold	4,716,165	157,301,256	-	162,017,421	104,836,801
Security lending institutional daily assets fund	50,357,509	1,679,606,034	-	1,729,963,543	1,699,984,799
Long-term investments:					
Mutual funds	-	-	166,573,895	166,573,895	174,463,992
U.S. government securities	40,572,680	1,372,705,095	-	1,413,277,775	1,494,437,729
U.S. corporate bonds	43,627,307	1,476,053,001	-	1,519,680,308	1,473,195,765
International corporate bonds and government securities	13,863,823	469,058,012	-	482,921,835	418,987,601
Equity securities	292,288,650	9,889,071,123	-	10,181,359,773	9,516,827,643
Private equity	38,848,570	1,314,372,875	-	1,353,221,445	1,134,939,460
Real estate	35,385,365	1,197,201,423	-	1,232,586,788	1,121,422,637
<b>Total long-term investments</b>	<b>464,586,395</b>	<b>15,718,461,529</b>	<b>166,573,895</b>	<b>16,349,621,819</b>	<b>15,334,274,827</b>
Capital assets, net	130,994	4,369,129	-	4,500,123	4,293,304
<b>Total assets</b>	<b>\$ 535,759,528</b>	<b>\$ 18,168,444,726</b>	<b>\$ 166,573,895</b>	<b>\$ 18,870,778,149</b>	<b>\$ 17,569,993,188</b>
<b>Liabilities</b>					
Due to brokers for securities purchased	985,679	331,752,620	-	332,738,299	219,401,577
Payable under security lending agreement	50,357,509	1,679,606,034	-	1,729,963,543	1,699,984,799
Other liabilities	360,179	12,013,279	-	12,373,458	12,809,524
<b>Total liabilities</b>	<b>\$ 51,703,367</b>	<b>\$ 2,023,371,933</b>	<b>\$ -</b>	<b>\$ 2,075,075,300</b>	<b>\$ 1,932,195,900</b>
<b>Net Position</b>					
Net position restricted for pensions and OPEB	\$ 484,056,161	\$ 16,145,072,793	\$ 166,573,895	\$ 16,795,702,849	\$ 15,637,797,288

See Notes to Financial Statements.

# Teachers' Retirement System of Oklahoma

## Statement of Changes in Fiduciary Net Position

For the year ended June 30, 2018 (With Comparative Totals for the Year Ended June 30, 2017)

	OPEB Plan	401(a) Plan	403(b) Plan	Totals	
				Year Ended June 30,	
				2018	2017
<b>Additions:</b>					
Members	\$ -	\$ 312,866,576	\$ -	\$ 312,866,576	\$ 292,949,337
Contributions to 403(b) plan	-	-	1,723,454	1,723,454	2,548,206
Employer statutory requirement from local school districts	2,912,563	413,068,467	-	415,981,030	403,256,970
State matching funds	-	26,437,350	-	26,437,350	23,027,846
Dedicated tax	-	318,172,751	-	318,172,751	278,924,055
<b>Total contributions</b>	<b>2,912,563</b>	<b>1,070,545,144</b>	<b>1,723,454</b>	<b>1,075,181,161</b>	<b>1,000,706,414</b>
<b>Investment income:</b>					
Interest and dividends	12,455,331	405,046,501	4,885,789	422,387,621	389,953,141
Net appreciation (depreciation) in fair value of investments	34,141,700	1,110,285,629	3,055,773	1,147,483,102	1,689,160,691
Investment expenses	(2,067,713)	(67,241,875)	-	(69,309,588)	(67,871,539)
<b>Gain from investing activities</b>	<b>44,529,318</b>	<b>1,448,090,255</b>	<b>7,941,562</b>	<b>1,500,561,135</b>	<b>2,011,242,293</b>
<b>Income from securities lending activities:</b>					
Securities lending income	256,785	8,350,660	-	8,607,445	9,672,943
Securities lending expenses:					
Management fees	(25,678)	(835,067)	-	(860,745)	(967,294)
<b>Net income from securities lending activities</b>	<b>231,107</b>	<b>7,515,593</b>	<b>-</b>	<b>7,746,700</b>	<b>8,705,649</b>
<b>Net investment gain</b>	<b>44,760,425</b>	<b>1,455,605,848</b>	<b>7,941,562</b>	<b>1,508,307,835</b>	<b>2,019,947,942</b>
<b>Total additions</b>	<b>47,672,988</b>	<b>2,526,150,992</b>	<b>9,665,016</b>	<b>2,583,488,996</b>	<b>3,020,654,356</b>
<b>Deductions:</b>					
Retirement, death, survivor and health benefits	36,963,620	1,323,912,271	-	1,360,875,891	1,312,125,733
Refund of member contributions and other payments	-	42,940,983	17,555,113	60,496,096	60,707,115
Administrative expenses	11,427	4,200,021	-	4,211,448	4,054,537
<b>Total deductions</b>	<b>36,975,047</b>	<b>1,371,053,275</b>	<b>17,555,113</b>	<b>1,425,583,435</b>	<b>1,376,887,385</b>
<b>Net increase (decrease) in net position</b>	<b>10,697,941</b>	<b>1,155,097,717</b>	<b>(7,890,097)</b>	<b>1,157,905,561</b>	<b>1,643,766,971</b>
<b>Net position restricted for:</b>					
Beginning of year	473,358,220	14,989,975,076	174,463,992	15,637,797,288	13,994,030,317
End of year	\$ 484,056,161	\$ 16,145,072,793	\$ 166,573,895	\$ 16,795,702,849	\$ 15,637,797,288

See Notes to Financial Statements.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 1. Description of the System

The following brief description of the Teachers' Retirement System of Oklahoma (the "System" or "TRS") is provided for general information purposes only. The System's benefits are established and amended by State Statute and participants should refer to Title 70 of the Oklahoma Statutes, 1991, Sections 17-101 through 121, as amended.

The System was established as of July 1, 1943 for the purpose of providing retirement allowances and other specified benefits for qualified persons employed by state-supported educational institutions. The System is a part of the state of Oklahoma financial reporting entity, which is combined with other similar funds to comprise the fiduciary-pension trust funds of the state of Oklahoma (the "State"). The System administers a cost-sharing multiple-employer pension plan which is a defined benefit pension plan ("DB Plan"), a cost-sharing multiple-employer benefit plan other than pensions ("OPEB Plan") as well as a tax-deferred defined contribution plan ("DC Plan").

The supervisory authority for the management and operation of the System is a 15-member Board of Trustees (the Board), which acts as a fiduciary for investment of the funds and the application of plan interpretations. The Board is comprised of six appointees from the Governor's Office, two appointees by the Senate Pro Tempore, two appointees by the House Speaker, four Ex Officio positions, and one non-voting member representing Retired Professional Oklahoma Educators. Out of the six appointees from the Governor's Office, one must be a Higher Education representative, one is a non-classified optional personnel, and the remaining four must work in the public or private funds management, banking, law or accounting field. Out of the two Senate Pro Tempore's as well as the House Speaker's appointees, one must be an active classroom teacher while the other be a retired member of Teachers' Retirement System of Oklahoma. The Ex Officio trustees are the State School Superintendent, the Office of Management and Enterprise Services Director, the Career-Tech Director or their designee, and the State Treasurer.

**DB Plan:** Oklahoma teachers and other certified employees of common schools, faculty and administrators in public colleges and universities, and administrative personnel of state educational boards and employees of agencies who are employed at least half-time must join the System's DB Plan. Membership is optional for all other regular employees of public educational institutions who work at least 20 hours per week. There are 598 contributing employers in the System. The DB Plan's membership consisted of the following as of June 30, 2018:

#### Pension

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	63,796
Inactive Plan Members Entitled to But Not Yet Receiving Benefits*	12,243
Active Plan Members	88,534
	<u>164,573</u>

\*Does not include 13,315 of non-vested terminated members entitled to a refund of their member contributions.

**OPEB Plan:** TRS will pay a monthly health insurance premium supplement for each retired member who is enrolled in the health insurance plan provided by the State and Education Employees Group Health and Dental Insurance plan or in an insurance program provided by a participating education employer who provides health insurance coverage to former employees, provided the retired member had at least ten (10) years of Oklahoma service prior to retirement. The supplement paid by TRS shall be the premium rate of the Medicare supplement charged to the retired employees not to exceed an amount between \$100 and \$105, depending on length of service and the final average salary of the retired member.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 1. Description of the System (Continued)

**OPEB Plan:** The OPEB Plan's membership consisted of the following as June 30, 2018:

##### OPEB

Inactive Plan Members or Beneficiaries Currently Eligible to Receive Benefits	57,866
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	5,147
Active Plan Members	88,534
Total Plan Members	<u>151,547</u>

**DC Plan:** Members are also offered a tax-deferred defined contribution plan qualified under the Internal Revenue Code ("IRC") Section 403(b). The DC Plan is also referred to by the System as the Tax-Sheltered Annuity Plan or 403(b) Plan. Membership in the DC Plan is voluntary, and investments primarily consist of mutual funds and are participant directed. Voya, a service provider, is responsible for administrative services, including custody and record keeping services.

The DC Plan had approximately 3,069 participants as of June 30, 2018. Contributions are voluntary and require a minimum of \$200 per year. The maximum deferral amount is the lesser of 100 percent of the participant's compensation or the maximum amount allowed by the IRC, currently \$18,500. Participants age 50 and older may contribute an additional \$6,000 if they qualify for the catch up provision.

#### Note 2. Summary of Significant Accounting Policies

**Basis of accounting:** The System has prepared its financial statements in accordance with accounting principles generally accepted in the United States of America and using the economic resources measurement focus. The financial statements are prepared using the accrual basis of accounting, under which expenses are recorded when the liability is incurred, revenues are recorded in the accounting period they are earned and become measurable, and investment purchases and sales are recorded as of their trade dates. Member and employer contributions are established by Oklahoma Statutes as a percentage of salaries and are recognized when due, pursuant to legal requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the Oklahoma Statutes. Administrative expenses are funded through investment earnings.

**Budgetary control:** The System prepares and submits an annual budget of operating expenses on the cash basis for monitoring and reporting to the Office of Management and Enterprise Services. The System's budget process follows the budget cycle for State operations as outlined by the Office of Management and Enterprise Services.

The Executive Director may approve changes within the budget, but a change to the total budget must be handled according to the provision of Title 62 O.S. Sec. 41.12 of the Oklahoma Statutes.

**Investments:** The System is authorized to invest in eligible investments as approved by the Board of Trustees as set forth in the System's investment policy. The Board reviews and updates the plan investment policy at least annually, making changes as deemed necessary to achieve policy goals. An investment policy change can be made at any time during the year at the discretion of the Board.

System investments are reported at fair value within the hierarchy established by generally accepted accounting principles, most recently by Governmental Accounting Standards Board (GASB) Statement No. 72, *Fair Value Measurement and Application*. The short-term investment fund is comprised primarily of investments in a money market fund, which are reported at cost, which approximates fair value. Debt and equity securities are reported at fair value, as determined by the System's custodial agent, using pricing services or prices quoted by independent brokers based on the latest reported sales prices at current exchange rates for securities traded on national or international exchanges.



## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

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#### Note 2. Summary of Significant Accounting Policies (Continued)

The System also invests as a limited partner in alternative investments. These investments employ specific strategies such as leveraged buyouts, venture capital, growth capital, distressed investments, and mezzanine capital. The strategies of all such funds are long term and illiquid in nature. As a result, investors are subject to redemption restrictions which generally limit distributions and restrict the ability of limited partners to exit a partnership investment prior to its dissolution. Alternative investment partnerships are valued using their respective net asset value (NAV) and are audited annually. The most significant input into the NAV of such an entity is the fair value of its investment holdings. These holdings are valued by the general partners on a quarterly or semi-annual basis, in conjunction with management and investment advisors and consultation with valuation specialists. The management assumptions are based upon the nature of the investment and the underlying business. The valuation techniques vary based upon investment type and involve a certain degree of expert judgment.

The System's real estate investments are primarily through limited partnerships. Properties owned by the partnerships are subject to independent third-party appraisals performed every three years in accordance with the Uniform Standards of Professional Appraisal Practice. The System's real estate investments are long term and illiquid in nature. As a result, investors are subject to redemption restrictions which generally limit distributions and restrict the ability of limited partners to exit a partnership investment prior to its dissolution. Limited partner interests are valued by the System using the NAV of the partnerships. The most significant input into the NAV of such an entity is the value of its investment holdings. These holdings are valued by the general partners on a continuous basis, audited annually, and may be periodically appraised by an independent third party. The valuation assumptions are based upon both market and property specific inputs which are not observable and involve a certain degree of expert judgment. The System evaluates investments in conjunction with their custodial bank and investment managers for impairment whenever events or changes in circumstances indicate that the carrying or fair value of the asset may not be recoverable. Should investments be deemed permanently impaired, the carrying or fair value is adjusted to the impaired value with an adjustment to investment income.

Net investment income includes net appreciation (depreciation) in the fair value of investments, interest income, dividend income, investment income from foreign currency translation gains and losses, securities lending income and expenses, and investment expenses, which includes investment management and custodial fees and all other significant investment related costs.

International investment managers use forward foreign exchange contracts to enhance returns or to control volatility. Currency risks arise due to foreign exchange rate fluctuations. Forward foreign exchange contracts are negotiated between two counter-parties. The System could incur a loss if its counter-parties failed to perform pursuant to the terms of their contractual obligations. The gains and losses on these contracts are included in the income in the period in which the exchange rates change. See Note 3 for additional information regarding investment derivatives as of June 30, 2018.

The System's investment policy provides for investment diversification of stocks, bonds, fixed income securities, real estate, alternative investments, and other investment securities along with investment in commingled or mutual funds. Investment securities and investment securities underlying commingled or mutual fund investments are exposed to various risks, such as interest rate, market, and credit risks.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements (With Comparative Totals as of June 30, 2017)

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#### Note 2. Summary of Significant Accounting Policies (Continued)

Due to the risks associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities may occur in the near term, and those changes could materially affect the amounts reported in the statements of fiduciary net position.

At June 30, 2018, the asset allocation guidelines established by the Board's investment policy were:

<u>Category</u>	<u>Allocation</u>
Domestic Equity	38.5%
International Equity	19.0%
Fixed Income	23.5%
Private Equity	9.0%
Real Estate	5.0%
Master Limited Partnerships	5.0%
Total	<u>100.0%</u>

**Capital assets:** Capital assets are stated at cost when acquired, net of accumulated depreciation. Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, which range from five to ten years.

**Risks and uncertainties:** Contributions to the System and the actuarial information included in Note 11 and the required supplementary information are reported based on certain assumptions pertaining to interest rates, inflation rates, employee compensation, and demographics. Due to the changing nature of these assumptions, it is at least reasonably possible that changes in these assumptions may occur in the near term and, due to the uncertainties inherent in setting assumptions, that the effect of such changes could be material to the financial statements.

**Compensated absences:** It is the State's policy to permit employees to accumulate earned but unused vacation and sick leave. Employees earn annual vacation leave based upon their start date and years of service. All accrued vacation leave is payable upon termination, resignation, retirement, or death. Sick leave does not vest to the employee and therefore is not recorded as a liability. Amounts due to the employees for compensated absences were approximately \$219,000 at June 30, 2018.

**Plan termination:** In the event the System terminates, the Board will distribute the net position of the System to provide the following benefits in the order indicated:

Accumulated contributions will be allocated to each respective member, former member, retired member, joint annuitant, or beneficiary then receiving payments.

The balance of such assets, if any, will be allocated to each member then having an interest in the System based upon the excess of their retirement income under the System less the retirement income, which is equal to the actuarial equivalent of the amount allocated to them in accordance with the preceding paragraph in the following order:

- Those retired members, joint annuitants, or beneficiaries receiving payments
- Those members eligible to retire
- Those members eligible for early retirement
- Former members electing to receive a vested benefit
- All other members

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

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#### Note 2. Summary of Significant Accounting Policies (Continued)

**Use of estimates:** The preparation of the System's financial statements in conformity with accounting principles generally accepted in the United States of America requires the System's management to make significant estimates and assumptions. Management of the System has made a number of estimates and assumptions relating to the reporting of assets and liabilities and the disclosure of contingent assets and liabilities to prepare these financial statements in conformity with U.S. generally accepted accounting principles (GAAP), note disclosure and required supplementary information (RSI). Actual results could differ from these estimates.

The System has performed an evaluation of subsequent events through, the date the basic financial statements were available to be issued. No events were identified.

#### Note 3. Cash and Investments

At June 30, 2018, the carrying amount of the System's bank deposits was approximately \$14,647,000. The bank balance of the System's bank deposits at June 30, 2018 was approximately (\$76,094,000). Bank balances were overdrawn due to benefit payments made at the end of June coupled with sales of investments in transit to negate the overdrawn position.

**Custodial credit risk:** Custodial credit risk is the risk that in the event of the failure of a counterparty, the System will not be able to recover the value of its bank deposits or investments. Bank deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. In relation to its bank deposits, the System is not considered to be exposed to custodial credit risk. Although the System does not have a formal bank deposit policy for custodial credit risk, the State Treasurer holds all of the System's bank deposits. As required by Oklahoma Statutes, all bank deposits held by the State Treasurer are insured by Federal Deposit Insurance Corporation, collateralized by securities held by the cognizant Federal Reserve Bank, or invested in U.S. government obligations.

**Fair Value Measurements** – The System categorizes fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements) as follows:

- Level 1 Unadjusted quoted prices for identical instruments in active markets.
- Level 2 Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- Level 3 Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured using the net asset value per share (NAV) (or its equivalent) as a practical expedient are not classified in the fair value hierarchy. In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

The System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The following table shows the fair value levels of the investments for the System as of June 30, 2018:

		Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3
<b>Investments by fair value level</b>				
Mutual Funds	\$ 166,573,895	\$ 166,573,895	\$ -	\$ -
Total mutual funds	166,573,895	166,573,895	-	-
Fixed Income securities				
Asset Backed Securities	190,315,176	-	190,315,176	-
Bank Loans	29,014,261	-	29,014,261	-
Commercial Mortgage-Backed	50,358,102	-	44,112,628	6,245,474
Corporate Bonds	1,560,454,469	-	1,559,714,949	739,520
Corporate Convertible Bonds	55,731,769	-	54,290,242	1,441,527
Government Agencies	29,741,390	-	26,976,662	2,764,728
Government Bonds	1,022,086,599	201,898,225	820,093,343	95,031
Government Mortgage Backed Securities	352,825,171	-	348,632,569	4,192,602
Gov't-issued Commercial Mortgage-Backed	33,661,184	-	31,871,865	1,789,319
Index Linked Government Bonds	62,132,603	55,649,868	6,482,735	-
Municipal/Provincial Bonds	21,629,710	-	21,629,710	-
Non-Government Backed C.M.O.s	7,929,484	-	7,267,541	661,943
Total fixed income securities	3,415,879,918	257,548,093	3,140,401,681	17,930,144
Equity securities				
Common Stock	9,820,513,446	9,818,804,829	28,475	1,680,142
Convertible Equity	4,466,119	859,104	3,607,015	-
Funds - Common Stock	26,105,235	26,105,235	-	-
Funds - Equities ETF	20,400,890	20,400,890	-	-
Preferred Stock	25,754,739	25,742,314	12,425	-
Rights/Warrants	354,141	352,139	2,002	-
Other Securities	115,775	-	-	115,775
Total equity securities	9,897,710,345	9,892,264,511	3,649,917	1,795,917
Total investments by fair value level	\$ 13,480,164,158	\$ 10,316,386,499	\$ 3,144,051,598	\$ 19,726,061
<b>Investments measured at the net asset value (NAV)</b>				
Alternative investments				
Real Estate Investments	\$ 1,232,586,788			
Private Equity Investments	1,353,221,445			
Total alternative investments	2,585,808,233			
Other Mutual Funds	283,649,428			
Total Investments measured at the NAV	2,869,457,661			
Total Investments measured at fair value and NAV	\$ 16,349,621,819			

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

Equity, derivative securities, and governmental debt securities classified in Level 1 are valued using prices quoted in active markets for those securities. Debt and debt derivative securities classified in Level 2 and Level 3 are valued using either a bid evaluation or a matrix pricing technique. Bid evaluations may include market quotations, yields, maturities, call features and ratings. Matrix pricing is used to value securities based on the securities relationship to benchmark quoted prices. Index linked debt securities are valued by multiplying the external market price feed by the applicable day's Index Ratio.

Level 2 debt securities have non-proprietary information that was readily available to market participants, from multiple independent sources, which are known to be actively involved in the market. Level 3 debt securities use proprietary information or single source pricing. Equity and equity derivative securities classified in Level 2 are securities whose values are derived daily from associated traded securities.

Equity securities classified in Level 3 are valued with last trade data having limited trading volume.

#### Investments in Entities that Calculate Net Asset Value per Share

The System holds shares or interests in investment companies at where the fair value of the investments are measured on a recurring basis using net asset value per share (or its equivalent) of the investment companies as a practical expedient.

The System's policy is to obtain an external appraisal a minimum of every year for properties or portfolios over which the System has some degree of control or discretion. In practice, some investments are appraised annually. Appraisals are performed by an independent appraiser with preference for Member Appraisal Institute (MAI) designated appraisers. The appraisals are performed using generally accepted valuation approaches applicable to the property type.

At year end, the NAV value, unfunded commitments, and redemption rules of those investments is as follows:

	Net Asset Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Real Estate Investments	\$ 1,232,586,788	\$ 100,575,686	N/A	N/A
Private Equity investments	1,353,221,445	846,916,019	N/A	N/A
Other Mutual Funds	283,649,428		Daily	1 Day
Total investments measured at the NAV	<u>\$ 2,869,457,661</u>			

**Real Estate Investments:** This type includes 12 real estate funds that invest primarily in commercial real estate. The values of the investments in this type have been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital. These investments can never be redeemed from the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next 20 years. Because it is not probable that any individual investment will be sold, the value of each individual investment has been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

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#### Note 3. Cash and Investments (Continued)

**Private Equity Funds:** This type includes 6 private equity funds that invest primarily in leveraged buyouts. The values of the investments in this type have been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital. These investments can never be redeemed from the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next 20 years. Because it is not probable that any individual investment will be sold, the value of each individual investment has been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital.

**Other Mutual Funds:** This type includes investments in an open-end mutual fund that emphasizes broad diversification and consistent exposure to emerging market small company stocks. The value of the investment in this type has been determined using the NAV per share of the investment.

The System does not anticipate restrictions, other than those outlined in the table, on the ability to sell individual investments at the measurement date. Additionally, the System does not anticipate that NAV-driven investments will become redeemable at valuations materially different from the corresponding NAV listed above. The System has no prescribed time frame to liquidate the investments.

**Custodial Credit Risk of Investments:** Investment securities are exposed to custodial credit risk if they are uninsured, are not registered in the name of the System, and are held by a counterparty or the counterparty's trust department but not in the name of the System. While the System's investment policy does not specifically address custodial credit risk, it does limit the amount of cash equivalents and short-term investments to no more than 5 percent of each manager's portfolio. At June 30, 2018, the System had uninsured and uncollateralized deposits translated to approximately \$2,250,000 U.S. Dollars with its custodial agent.

**Credit risk:** Fixed-income securities are subject to credit risk. Credit quality rating is one method of assessing the ability of the issuer to meet its obligation. The System's investment policy places limits on the amount of the fixed income portfolio that may be invested in bonds rated Ba1 or lower by Moody's or BB+ or lower by Standard & Poor's. Short-term investments include United States Treasury bills that mature in less than 90 days.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements (With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

The following table presents the System's fixed income securities subject to credit risk (amounts in thousands).

Investment Type	AAA	AA	A	BBB	BB	B
Asset backed securities	\$ 81,576	\$ 21,204	\$ 9,696	\$ 6,291	\$ -	\$ 692
Bank loans	-	-	-	-	3,752	5,644
Commercial mortgage-backed	10,467	2,160	3,413	1,977	2,022	-
Corporate bonds	1,572	21,504	135,447	455,469	507,719	315,493
Corporate convertible bonds	-	-	615	2,321	5,981	2,310
Government agencies	7,118	3,291	8,990	4,831	-	-
Government bonds	-	8,959	8,670	2,015	5,512	6,947
Government mortgage-backed securities	-	-	-	-	-	-
Gov't-issued commercial mortgage-backed	2,082	-	-	-	-	-
Index linked government bonds	-	-	-	-	-	-
Municipal/Provincial bonds	-	3,718	7,792	-	-	3,911
Non-government backed C.M.O.s	-	378	-	-	-	-
Sukuk	-	-	-	401	-	-
Total fixed income	102,815	61,214	174,623	473,305	524,986	334,997
Short-term investments	-	-	-	-	-	-
	\$ 102,815	\$ 61,214	\$ 174,623	\$ 473,305	\$ 524,986	\$ 334,997

				US Government		Total	Investment Type
CCC	CC	C	D	Not Rated	Securities		
\$ 167	\$ -	\$ -	\$ -	\$ 70,688	\$ -	\$ 190,314	Asset backed securities
7,740	-	369	-	11,509	-	29,014	Bank loans
-	-	-	-	30,127	192	50,358	Commercial mortgage-backed
65,097	998	-	-	57,156	-	1,560,455	Corporate bonds
9,080	-	-	-	35,424	-	55,731	Corporate convertible bonds
-	-	-	-	2,765	2,747	29,742	Government agencies
-	-	-	-	34,275	955,709	1,022,087	Government bonds
-	-	-	-	-	352,825	352,825	Government mortgage-backed securities
-	-	-	-	53	31,526	33,661	Gov't-issued commercial mortgage-backed
-	-	-	-	-	62,133	62,133	Index linked government bonds
-	-	-	-	5,808	-	21,229	Municipal/Provincial bonds
917	-	-	-	6,635	-	7,930	Non-government backed C.M.O.s
-	-	-	-	-	-	401	Sukuk
83,001	998	369	-	254,440	1,405,132	3,415,880	Total fixed income
-	-	-	-	-	80,074	80,074	Short-term investments
\$ 83,001	\$ 998	\$ 369	\$ -	\$ 254,440	\$ 1,485,206	\$ 3,495,954	

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

**Interest rate risk:** Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Duration is a measure of a debt investment's exposure to fair value changes arising from changing interest rates based upon the present value of cash flows, weighted for those cash flows as a percentage of the investment's full price. Effective duration estimates the sensitivity of a bond's price to interest rate changes and makes assumptions regarding the most likely timing and amounts of variable cash flows arising from investments such as callable bonds, collateralized mortgage obligations, and other mortgage-backed securities. While all investments are subject to market changes, securities invested in index funds are more sensitive to market risk. Although the System's investment policy does not specifically address the duration of fixed-income securities, the System's management does monitor interest rate risk by monitoring the performance of each investment manager. As of June 30, 2018, the System had the following investments with maturities (dollars in thousands):

Investment Type	Fair Value	Effective Duration in Years
Asset-backed securities	\$ 187,365	1.1
Commercial mortgaged-backed	50,358	3.6
Corporate bonds	1,550,275	4.8
Corporate convertible bonds	52,909	4.5
Government agencies	29,742	7.0
Government bonds	1,021,730	14.3
Government mortgage-backed securities	352,825	5.2
Government issued commercial mortgaged-backed	33,661	4.5
Index linked government bonds	62,133	19.1
Municipal/Provincial bonds	20,410	4.7
Non-government backed CMOs	7,352	2.1
Sukuk	401	0.4
Other fixed income securities	46,719	8.5
Total fixed income	<u>\$ 3,415,880</u>	
Portfolio duration		<u>7.8</u>

**Concentration of credit risk:** Investments can be exposed to concentration of credit risk if significant amounts are invested in any one issuer. The System's investment policy places limits on the amount that may be invested in securities of any single issuer. As of June 30, 2018, the System did not hold 5% or more of its total investments in any one issuer.



## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

**Foreign currency risk:** Foreign currency risk is the potential risk for loss due to changes in exchange rates. The System's investment policy provides that international investment managers invest no more than 30 percent of their portfolio's total assets in one or more issuers in a single country, provided that in the U.K. or Japan such limit shall be 35 percent. Investment in cash and cash equivalents, foreign equities, and fixed-income securities as of June 30, 2018 is shown in the following table by monetary unit to indicate possible foreign currency risk (dollars in thousands):

Currency	Equities	Corporate Bonds	Government Bonds	Foreign Exchange Contracts	Cash and Cash Equivalents	Grand Total
Argentine Peso	\$ -	\$ -	\$ 2,934	\$ -	\$ 120	\$ 3,054
Australian Dollar	97,803	-	-	(26)	26	97,803
Brazilian Real	21,537	-	-	-	16	21,553
British Pound Sterling	478,127	1,879	-	(725)	193	479,474
Canadian Dollar	111,300	-	-	(5)	31	111,326
Chilean Peso	971	-	-	-	-	971
Czech Koruna	409	-	-	-	-	409
Danish Krone	20,872	-	-	-	-	20,872
Euro	658,453	8,134	-	517	(485)	666,619
Hong Kong Dollar	214,282	-	-	-	191	214,473
Hungarian Forint	6,299	-	-	-	-	6,299
Indonesian Rupiah	4,464	-	-	-	-	4,464
Israeli Shekel	6,868	-	-	-	-	6,868
Japanese Yen	507,352	-	-	(318)	936	507,970
Malaysian Ringgit	9,565	-	-	-	-	9,565
Mexican Peso	6,249	4,926	24,404	-	-	35,579
New Taiwan Dollar	85,177	-	-	335	431	85,943
New Zealand Dollar	750	-	-	-	-	750
Norwegian Krone	24,917	-	-	-	-	24,917
Philippine Peso	4,821	-	-	(59)	-	4,762
Polish Zloty	4,442	-	-	-	-	4,442
Qatari Rial	356	-	-	-	-	356
Singapore Dollar	26,940	-	-	-	-	26,940
South African Rand	15,306	-	3,259	(3,046)	-	15,519
South Korean Won	96,885	-	-	-	-	96,885
Swedish Krona	47,833	-	-	(132)	316	48,017
Swiss Franc	145,809	-	-	-	474	146,283
Thai Baht	17,260	-	-	-	-	17,260
Turkish Lira	15,543	-	-	-	-	15,543
UAE Dirham	485	-	-	-	-	485
Uruguayan Peso	-	-	697	-	-	697
<b>Total</b>	<b>\$ 2,631,075</b>	<b>\$ 14,939</b>	<b>\$ 31,294</b>	<b>\$ (3,459)</b>	<b>\$ 2,249</b>	<b>\$ 2,676,098</b>

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

**Derivative instruments:** The System's investment derivatives include forward currency and futures contracts. These investments are not speculative in nature and do not increase investment risk beyond allowable limits specified in the System's investment policy. A futures contract is a contract to buy or sell units of an index or financial instrument at a specified future date at a price agreed upon when the contract is originated. The System purchases and sells futures contracts as a means of adjusting the TRS portfolio mix at a lower transaction cost than the transactions, which would otherwise occur in the underlying portfolios. During fiscal year ended June 30, 2018, S&P 500 futures and U.S. Treasury note futures were utilized. Upon entering into such a contract, the TRS pledges cash or U.S. government securities to the broker equal to the minimum initial margin requirement of the futures exchange. Additionally, TRS receives or pays a daily variation margin, which is an amount of cash equal to the daily fluctuation in value of the contract. The change in fair value of the futures contracts is presented in the statement of changes in fiduciary net position as "Net change in fair value of investments." The net change in fair value from futures contracts for fiscal year ended June 30, 2018 was (\$676,678). At June 30, 2018, the foreign currency futures contracts outstanding were as follows:

Description	Expiration Date	Open Position	Number of Contracts	Notional Contract Size	Fair Value	Notional Value
S&P 500 Index	September 2018	Long	2	N/A	\$ 21,092,400	\$ 21,488,493
S&P 400 Midcap Index	September 2018	Long	2	N/A	3,520,980	3,593,201
German Gov't Bond	September 2018	Short	1	Eurx Eur-Bund	(2,846,779)	(2,821,079)
U.S. Treasury note	September 2018	Short	1	10-year U.S. Treasury note	(6,730,500)	(6,695,500)
U.S. Treasury note	September 2019	Short	1	5-year U.S. Treasury note	(19,201,305)	(19,209,227)
U.S. Treasury note	September 2018	Short	2	U.S. Treasury note	(7,540,000)	(7,377,845)
U.S. Treasury note	September 2018	Short	1	U.S. Treasury note	(12,310,500)	(12,321,005)
U.S. Treasury note	September 2018	Long	2	5-year U.S. Treasury note	28,177,063	28,135,267
U.S. Treasury note	September 2018	Long	2	U.S. Treasury note	6,542,063	6,508,475
U.S. Treasury note	September 2018	Long	3	2-year U.S. Treasury note	90,874,266	90,953,585
					<u>\$ 101,577,687</u>	<u>\$ 102,254,365</u>

A foreign currency forward contract is an agreement that obligates the parties to exchange given quantities of currencies at a pre-specified exchange rate on a certain future date. The fair values of the forward contracts are estimated based on the present value of their estimated future cash flows.

The foreign currency forward contracts subject the System to foreign currency risk because the investments are denominated in international currencies. The risks are described in the foreign currency risk schedule where the fair value of the foreign currency contracts in U.S. dollars is presented. The System enters into foreign exchange forward contracts for TRS to manage foreign currency exposure, as permitted by portfolio policies. The fair values of the contracts are presented in the Statement of Fiduciary Net Position as Investments, at fair value – Equities. The change in fair value of the forward contracts is presented in the statement of changes in fiduciary net position as "Net change in fair value of investments." The net change in fair value from foreign currency forward contracts for fiscal year ended June 30, 2018 was \$313,280. At June 30, 2018, the foreign currency forward contracts outstanding were as follows:

Description	Fair Value (U.S. Dollars)	Currency	Value Date	Notional Value
Forward sale	\$ (108,474)	JPY	7/5/2018	\$ (108,338)
Forward sale	(287,084)	USD	7/2/2018	(287,084)
Forward sale	(397,281)	USD	7/3/2018	(397,281)
Forward purchase	65,107	EUR	7/2/2018	64,597
Forward purchase	79,397	GBP	7/2/2018	78,804
Forward purchase	18,778	SEK	7/2/2018	18,624
Forward purchase	160,507	USD	7/2/2018	160,507
Forward purchase	842,201	USD	7/3/2018	842,201
Forward purchase	174,001	USD	7/5/2018	174,001
Forward purchase	3,922,828	USD	8/2/2018	3,922,828

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 3. Cash and Investments (Continued)

**Rate of return - Pension:** For the year ended June 30, 2018, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 9.88 percent. The money-weighted rate of return expresses investment performance, net of investment expense, as adjusted for the changing amounts actually invested.

**Rate of return - OPEB:** For the year ended June 30, 2018, the annual money-weighted rate of return on OPEB plan investments, net of OPEB plan investment expense, was 9.71 percent. The money-weighted rate of return expresses investment performance, net of investment expense, as adjusted for the changing amounts actually invested.

#### Note 4. Commitments

At June 30, 2018, the System has total capital commitments related to alternative and real estate investments of \$3,125,400,000. Of this amount, approximately \$947,492,000 remained unfunded.

#### Securities Lending Activity

The System's investment policy and State statutes provide for its participation in a securities lending program. The program is administered by the System's master custodian, and there are no restrictions on the amount of loans that can be made. Certain securities of the System are loaned to participating brokers, who must provide collateral in the form of cash, U. S. Treasury or government agency securities, or letters of credit issued by approved banks.

Under the terms of the agreement, collateralization of the fair value of the loaned securities must be provided in the amount of 102 percent when the security to be loaned and the collateral are in the same currency and 105 percent when the loan and collateral currencies are dissimilar. The securities on loan as of June 30, 2018 collateralized by cash were approximately \$1,688,123,000 and the cash collateral received for those securities on loan was approximately \$1,729,964,000. Securities on loan as of June 30, 2018 consisted of equity loans, corporate fixed income and US government and agencies securities collateralized by cash and non-cash securities. Because the System cannot pledge or sell collateral securities and letters of credit received unless the borrower defaults, the collateral and related liability is presented in the accompanying statements of fiduciary net position. The following table describes the types of securities lent and collateral as of June 30, 2018 (dollars in thousands):

	Fair Value of Securities on Loan	Collateral Value	Collateral Percentage
Governmental loans compared to collateral	\$ 304,189	\$ 311,133	102%
Equity loans compared to collateral	1,165,659	1,195,218	103%
Corporate loans compared to collateral	218,275	223,613	102%
	<u>\$ 1,688,123</u>	<u>\$ 1,729,964</u>	

At June 30, 2018, the System had no credit risk exposure since the amounts the System owed to borrowers exceeded the amounts borrowers owed the System. The contract with the System's lending agent requires it to indemnify the System if the borrowers fail to return the lent securities. In the event of a collateral shortfall due to a loss in value of investments made with cash collateral, such loss would be the responsibility of the System.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements (With Comparative Totals as of June 30, 2017)

#### Securities Lending Activity (Continued)

All securities loans can be terminated on demand by either the System or the borrower. Cash collateral is invested in a separate account for the System in accordance with investment guidelines approved by the System. At June 30, 2018, the weighted average maturity of the cash collateral investments was 19 days. The dollar-weighted average maturity of cash collateral investments shall not exceed ninety days. For purposes of this restriction, the average maturity of variable rate instruments will be calculated to the next interest reset date. The Cash Collateral Account's minimum overnight liquidity level shall not be less than twenty percent. The cash collateral investments are structured and maintained by the lending agent's investment desk utilizing an asset and liability methodology designed to manage to an appropriate extent any mismatch between the investment maturities and the System's loans.

#### Note 6. Capital Assets

Capital assets consist of the following at June 30, 2018:

	Balance June 30, 2017	Additions	Deletions	Balance June 30, 2018
Furniture, fixtures and equipment	\$ 4,607,941	\$ 357,367	\$ -	\$ 4,965,308
Accumulated depreciation	(314,637)	(150,548)	-	(465,185)
Capital assets, net	<u>\$ 4,293,304</u>			<u>\$ 4,500,123</u>

The System has commitments to lease building space as well as leases on certain equipment. The future minimum commitment for operating leases as of June 30, 2018 was approximately \$200,000. The System's leases are one-year renewable contracts. Rental expense for all operating leases amounted to approximately \$200,000 for the year ended June 30, 2018.

#### Note 7. Member and Employer Contributions

All contribution rates are defined or amended by the Oklahoma Legislature. All active members contribute to the System; however, the employer may elect to pay all or part of the contribution for its employees. There are special provisions for members of higher education who joined the System before July 1, 1995. The annual employer contributions reported for the year ended June 30, 2018 were \$415,981,030. Employers satisfied 100 percent of their contribution requirements for 2018.

All members must contribute 7 percent of regular annual compensation, not to exceed the member's maximum compensation level, which for the year ended June 30, 2018 was the full amount of regular annual compensation.

The employers are required to contribute a fixed percentage of annual compensation on behalf of active members. The employer contribution rate was 9.5 percent beginning on January 1, 2011 for all remitting entities other than comprehensive and four year regional universities. The employer contribution rate was 8.55 percent starting on January 1, 2011 for comprehensive and four year universities. The rates for fiscal year 2018 are applied on the full amount of the member's regular annual compensation up to certain limits prescribed by the IRC.

#### Note 8. Benefits

The System provides defined retirement benefits based on members' final compensation, age, and term of service. In addition, the retirement program provides for benefits upon disability and to survivors upon the death of eligible members. Title 70 O. S. Sec. 17-105 defines all retirement benefits. The authority to establish and amend benefit provisions rests with the State Legislature.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements (With Comparative Totals as of June 30, 2017)

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#### Note 8. Benefits (Continued)

Benefit provisions include:

- Members who join TRS after July 1, 1991 become fully vested in retirement benefits earned to date after five years of credited service. Members who join TRS on or after November 1, 2017 become fully vested after seven years of credited service. Any member who has attained age fifty-five (55) or who has completed thirty (30) years of creditable service, or for any person who initially became a member prior to July 1, 1992, whose age and number of years of creditable service total eighty (80) may be retired upon proper application for retirement on forms established by the System and executing a retirement contract. Any person who became a member after June 30, 1992, but prior to November 1, 2011, whose age and number of years of creditable service total ninety (90) may be retired upon proper application for retirement and executing a retirement contract. Any person who becomes a member on or after November 1, 2011, who attains the age of sixty-five (65) years or who reaches a normal retirement date having attained a minimum age of sixty (60) years may be retired upon proper application for retirement and executing a retirement contract.
- Final compensation for members who joined the System prior to July 1, 1992 is defined as the average salary for the three highest years of compensation. Final compensation for members joining the System after June 30, 1992 is defined as the average of the highest five consecutive years of annual compensation in which contributions have been made. The final average compensation is limited for service credit accumulated prior to July 1, 1995 to \$40,000 or \$25,000, depending on the member's election. Monthly benefits are 1/12 of this amount. Service credits accumulated after June 30, 1995 are calculated based on each member's final average compensation, except for certain employees of the two comprehensive universities. Upon the death of a member who has not yet retired, the designated beneficiary shall receive the member's total contributions plus 100 percent of interest earned through the end of the fiscal year, with interest rates varying based on time of service. A surviving spouse of a qualified member may elect to receive, in lieu of the aforementioned benefits, the retirement benefit the member was entitled to at the time of death as provided under the Joint Survivor Benefit Option.
- Upon the death of a retired member, the System will pay \$5,000 to the designated beneficiary, in addition to the benefits provided for the retirement option selected by the member.
- A member is eligible for disability benefits after ten years of credited Oklahoma service. The disability benefit is equal to 2 percent of final average compensation for the applicable years of credited service.
- Upon separation from the System, members' contributions are refundable with interest based on certain restrictions provided in the plan, or by the IRC.
- Members may elect to make additional contributions to a tax-sheltered annuity program up to the exclusion allowance provided under the IRC under Code Section 403(b).

#### Supplemental Health Insurance Program (OPEB Plan)

The System makes payments to certain retiree health insurance providers that are subsidies to help pay for certain supplemental health benefits that are available to eligible retired members who elect such coverage. The subsidy payments are made to the Employees Group Insurance Division (EGID) of the Office of Management and Enterprise Services (OMES) for retirees who opt to continue their employer-provided insurance and are also made to employers who provide health insurance options through other insurers as long as the plans provide health insurance options to both the employers' active and retired employees.

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

#### Note 8. Benefits (Continued)

All retirees are eligible except for special retirees (as defined) and spouses and beneficiaries as long as they have at least 10 years of service. Retirees who elect such coverage receive the smaller of (i) a Medicare supplement benefit, if eligible, or (ii) an amount between \$100 and \$105 per month, depending on service and final average compensation. Payments are made on their behalf monthly (i) to EGID as described above, if the member continues health coverage under that Plan, or (ii) to the member's former employer, if the member retains health coverage under a plan maintained by the former employer as described above. The amounts paid to EGID or local employers were approximately \$36,963,000 in 2018 and are included in retirement and other benefits expense.

Employer and employee contributions are made based upon the TRS Plan provisions contained in Title 70 of the Oklahoma Statutes, as amended. However, the statutes do not specify or identify any particular contribution source to pay the health insurance subsidy. The cost of the subsidy averages 0.14% of normal cost, as determined by an actuarial valuation.

Each employer in the OPEB Plan will begin disclosing the employer's own apportioned elements of the OPEB plan.

Assumptions: For OPEB, the actuarial valuation date was performed as of June 30, 2018. The measurement date was June 30, 2018. The benefits are only available to those retirees that participate and have at least 10 years of service credit at retirement.

#### Note 9. Dedicated Tax

The plan receives funds provided by the State of Oklahoma, a non-employer contributing entity, through 5.0 percent of the State's sales, use, and corporate and individual income taxes collected as dedicated tax. The System receives 1 percent of the cigarette taxes collected by the State and receives 5 percent of net lottery proceeds collected by the State. The System received approximately \$318,173,000 from the State in 2018. Amounts due from the State were approximately \$37,930,000 at June 30, 2018.

#### Note 10. DB Plans (Pension and OPEB Actuarial Information)

The components of the net pension liability of the employers at June 30, 2018 were as follows:

Total pension liability	\$	22,196,455,995
Plan fiduciary net position		(16,145,072,793)
Employers' net pension liability	\$	<u>6,051,383,202</u>

Plan fiduciary net position as a percentage of the total pension liability 72.74%

The components of the net OPEB asset at June 30, 2018 were as follows:

Total OPEB liability	\$	419,430,692
Plan fiduciary net position		(484,056,162)
Employers' net OPEB asset	\$	<u>(64,625,470)</u>

Plan fiduciary net position as a percentage of the total OPEB asset 115.41%

## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

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#### Note 10. DB Plans (Pension and OPEB Actuarial Information) (Continued)

The total pension and OPEB liability and total pension and OPEB asset as of June 30, 2018, were determined based on actuarial valuations prepared as of June 30, 2018 using the following actuarial assumptions:

- Actuarial Cost Method—Entry Age Normal
- Inflation—2.50 percent
- Future Ad Hoc Cost-of-living Increases—None
- Salary Increases—Composed of 3.25 percent wage inflation, including 2.50 percent price inflation, plus a service-related component ranging from 0.00 percent to 8.00 percent based on years of service
- Investment Rate of Return—7.50 percent
- Retirement Age—Experience-based table of rates based on age, service, and gender. Adopted by the Board in May 2015 in conjunction with the five year experience study for the period ending June 30, 2014
- Mortality Rates after Retirement—Males: RP-2000 Combined Healthy mortality table for males with White Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table's base year of 2000. Females: GRS Southwest Region Teacher Mortality Table, scaled at 105%. Generational mortality improvements in accordance with Scale BB from the table's base year of 2012.
- Mortality Rates for Active Members—RP-2000 Employee Mortality tables, with male rates multiplied by 60% and female rates multiplied by 50%

#### Note 11. DB Plans (Pension and OPEB Actuarial Information)

**Measurement of the net pension liability:** The net pension liability is measured as the total pension liability, less the amount of the plan's fiduciary net position. In actuarial terms, this is analogous to the accrued liability as measured using the individual entry age normal actuarial cost method less the fair value of assets (not the smoothed actuarial value of assets seen in actuarial valuations based on the Board's adopted assumptions and methods).

For the valuation period ending June 30, 2018, a single discount rate of 7.50% was used to measure the total pension liability. Based on the stated assumptions and the projection of cash flows, the pension plan's fiduciary net position and future contributions were projected to be available to finance all projected future benefit payments of current plan members.

Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

The projection of cash flows used to determine this single discount rate assumed that plan member and employer contributions will be made at the current statutory levels and remain a level percentage of payroll. The projection of cash flows also assumed that the State's contribution plus the matching contributions will remain a constant percent of projected member payroll based on the past five years of actual contributions.

The long-term expected rate of return on pension plan investments was determined using a building block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

The target asset allocation and best estimates of arithmetic expected real rates of return for each major asset class as of June 30, 2018 are summarized in the following table:

## Teachers' Retirement System of Oklahoma

## Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

## Note 11. DB Plans (Pension and OPEB Actuarial Information) (Continued)

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Domestic Equity	38.5%	7.5%
International Equity	19.0%	8.5%
Fixed Income	23.5%	2.5%
Real Estate	9.0%	4.5%
Alternative Assets	10.0%	6.1%
Total	100.0%	

\*\*The Real Estate total expected return is a combination of US Direct Real Estate (unleveraged) and US Value added Real Estate (unleveraged).

**Sensitivity of the net pension liability and net OPEB asset to the single discount rate assumptions:** The following table provides the sensitivity of the net pension liability and net OPEB asset to changes in the discount rate as of June 30, 2018. In particular, the table presents the plan's net pension liability and net OPEB asset, if they were calculated using a single discount rate that is one-percentage-point lower or one-percentage-point higher than the single discount rate:

	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Net pension liability	\$ 8,604,702,854	\$ 6,051,383,202	\$ 3,913,823,602
	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Net OPEB asset	\$ (22,697,593)	\$ (64,625,470)	\$ (100,451,837)

Due to the structure of the OPEB plan, healthcare cost trend rate sensitivity analysis is not meaningful.

## Note 12. New Accounting Pronouncements Issued, Not Yet Adopted

Fiscal Year Ended June 30, 2018:

GASB Statement No. 81 (GASB 81), *Irrevocable Split-Interest Agreements* provides additional accounting and financial reporting information for circumstances when a government is a beneficiary or an administrator of such agreements. As of the date of the financial statements, the Plan is currently evaluating the effects of this pronouncement.



## Teachers' Retirement System of Oklahoma

### Notes to Financial Statements

(With Comparative Totals as of June 30, 2017)

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#### Note 12. New Accounting Pronouncements Issued, Not Yet Adopted (Continued)

GASB Statement No. 85 (GASB 85), *Omnibus 2017* addresses practice issues identified in the implementation and application of existing GASB Statements. The issues involve certain situations involving blending component units, goodwill, fair value measurement and application, pensions and OPEB. As of the date of the financial statements, the Plan is currently evaluating the effects of this pronouncement.

GASB Statement No. 86 (GASB 86), *Certain Debt Extinguishment Issues* improves consistency in accounting and financial reporting for in-substance defeasance of debt by providing guidance for transactions in which cash and other monetary assets acquired only with existing resources – resources other than the proceeds of refunding debt - are placed in an irrevocable trust for the sole purpose of extinguishing debt. As of the date of the financial statements, the Plan is currently evaluating the effects of this pronouncement.

#### Fiscal Year Ended June 30, 2019 (and beyond):

GASB Statement No. 83 (GASB 83), *Certain Asset Retirement Obligations* addresses accounting and financial reporting for certain asset retirement obligations (AROs). An ARO is a legally enforceable liability associated with the retirement of a tangible capital asset. A government that has legal obligations to perform future asset retirement activities related to its tangible capital assets should recognize a liability based on the guidance.

GASB 83 is effective for reporting periods beginning after June 15, 2018. As of the date of the financial statements, the Plan is currently evaluating the effects of this pronouncement.

GASB Statement No. 84 (GASB 84), *Fiduciary Activities* seeks to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. GASB-84 establishes criteria for identifying fiduciary activities of all state and local governments. The focus of the criteria generally is on (1) whether a government is controlling the assets of the fiduciary activity and (2) the beneficiaries with whom a fiduciary relationship exists. Separate criteria are included to identify fiduciary component units and postemployment benefit arrangements that are fiduciary activities. GASB 84 is effective for reporting periods beginning after December 15, 2018. As of the date of the financial statements, the Plan is currently evaluating the effects of this pronouncement.

GASB Statement No. 87 (GASB 87), *Leases* increases the usefulness of governments' financial statements by requiring recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this GASB 87, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources, thereby enhancing the relevance and consistency of information about governments' leasing activities. GASB 87 is effective for reporting periods beginning after December 15, 2019. As of the date of the financial statements, the Plan is currently evaluating the effects of this pronouncement.

## Teachers' Retirement System of Oklahoma

## Required Supplementary Information

Schedule of Changes in Employers' Net Pension Liability (Unaudited)  
Fiscal Year Ended June 30,

	Year Ended June 30				
	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	\$ 432,592,587	\$ 446,728,754	\$ 428,904,761	\$ 415,702,261	\$ 409,199,801
Interest	1,586,869,029	1,599,025,933	1,609,511,334	1,538,893,982	1,491,722,137
Benefit changes	18,410,937	-	-	-	-
Difference between actual and expected return	(99,947,351)	(373,928,623)	(36,212,168)	(159,980,414)	(105,344,633)
Assumption changes	-	(482,042,966)	933,294,515	346,488,630	-
Benefit payments	(1,323,912,271)	(1,281,816,606)	(1,257,276,705)	(1,201,350,907)	(1,153,051,607)
Refunds	(42,940,983)	(40,944,298)	(36,109,832)	(35,240,176)	(28,718,256)
<b>Net change in total pension liability</b>	<b>571,071,948</b>	<b>(132,977,806)</b>	<b>1,642,111,905</b>	<b>904,513,376</b>	<b>613,807,442</b>
Total pension liability:					
Beginning	21,625,384,047	21,758,361,853	20,551,132,567	19,646,619,191	19,032,811,749
Ending (a)	22,196,455,995	21,625,384,047	22,193,244,472	20,551,132,567	19,646,619,191
Plan fiduciary net position:					
Contributions-Employer/State	757,678,568	698,695,713	725,425,216	728,442,070	707,052,675
Contributions-Members	312,866,576	292,949,337	294,459,090	303,677,304	301,300,811
Net investment income	1,455,605,848	1,945,898,975	(357,443,247)	428,855,747	2,571,707,952
Benefit payments	(1,323,912,271)	(1,281,816,606)	(1,257,276,705)	(1,201,350,906)	(1,153,051,607)
Refunds	(42,904,983)	(40,944,298)	(36,109,832)	(35,240,176)	(28,718,256)
Administrative expense	(4,200,021)	(4,028,080)	(4,458,336)	(4,358,938)	(4,282,605)
<b>Net change in plan fiduciary net position</b>	<b>1,155,133,717</b>	<b>1,610,755,041</b>	<b>(635,403,814)</b>	<b>220,025,101</b>	<b>2,394,008,970</b>
Plan fiduciary net position:					
Beginning	14,989,975,076	13,379,220,035	14,449,506,469	14,229,481,368	11,835,472,398
Ending (b)	16,145,108,793	14,989,975,076	13,814,102,655	14,449,506,469	14,229,481,368
<b>Plan's net pension liability (a)-(b)</b>	<b>\$ 6,051,347,202</b>	<b>\$ 6,635,408,971</b>	<b>\$ 8,379,141,817</b>	<b>\$ 6,101,626,098</b>	<b>\$ 5,417,137,823</b>

\*\*See notes to required supplementary information\*\*

Information to present a 10 year schedule is not currently available.

## Teachers' Retirement System of Oklahoma

## Required Supplementary Information

## Schedule of Employers' Net Pension Liability (Unaudited)

Fiscal Years Ended June 30,

	2018	2017	Year Ended June 30 2016	2015	2014
Total pension liability	\$ 22,196,455,995	\$ 21,625,384,047	\$ 22,193,244,472	\$ 20,551,132,567	\$ 19,646,619,191
Plan fiduciary net position	16,145,072,793	14,989,675,076	13,814,102,655	14,449,506,469	14,229,481,368
<b>Employers' net Pension liability</b>	<b>\$ 6,051,383,202</b>	<b>\$ 6,635,708,971</b>	<b>\$ 8,379,141,817</b>	<b>\$ 6,101,626,098</b>	<b>\$ 5,417,137,823</b>
Employers' fiduciary net position as a percentage of the total pension liability	72.74%	69.32%	62.24%	70.31%	72.43%
Covered payroll	\$ 4,149,557,077	\$ 4,070,723,673	\$ 4,206,558,429	\$ 4,338,247,200	\$ 4,304,297,300
Employers' net pension liability as a percentage of covered payroll	145.82%	163.00%	199.19%	140.65%	125.85%

\*\*See notes to required supplementary information\*\*

Information to present a 10 year schedule is not currently available.

## Teachers' Retirement System of Oklahoma

## Required Supplementary Information

Schedule of Contributions From Employers  
and Other Contributing Entities (Unaudited)

	2018	2017	2016	2015	2014
Actuarially determined contributions	\$ 705,424,703	\$ 689,580,590	\$ 723,528,050	\$ 550,652,420	\$ 602,936,966
Contributions in relation to the actuarially determined contribution:					
Employers (Schools)	413,068,467	396,743,812	409,753,221	392,051,458	386,895,127
State of Oklahoma, a non-employer contributing entity	344,610,101	301,951,901	315,671,995	336,390,612	320,157,548
<b>Contribution deficiency (excess)</b>	<b>\$ (52,253,865)</b>	<b>\$ (9,115,123)</b>	<b>\$ (1,897,166)</b>	<b>\$ (177,789,650)</b>	<b>\$ (104,115,709)</b>
Covered payroll	\$ 4,149,557,077	\$ 4,070,723,673	\$ 4,206,558,429	\$ 4,338,247,200	\$ 4,304,297,300
Contributions as a percentage of covered payroll	18.26%	17.16%	17.25%	16.79%	16.43%
	2013	2012	2011	2010	2009
Actuarially determined contributions	\$ 619,805,640	\$ 588,287,377	\$ 822,419,996	\$ 742,286,289	\$ 714,367,558
Contributions in relation to the actuarially determined contribution:					
Employers (Schools)	373,789,020	376,635,234	364,025,589	366,282,238	338,974,512
State of Oklahoma, a non-employer contributing entity	327,505,309	304,995,663	274,452,205	254,375,139	279,672,051
<b>Contribution deficiency (excess)</b>	<b>\$ (81,488,689)</b>	<b>\$ (93,343,520)</b>	<b>\$ 183,942,202</b>	<b>\$ 121,628,912</b>	<b>\$ 95,720,995</b>
Covered payroll	\$ 3,933,100,000	\$ 3,924,800,000	\$ 3,773,300,000	\$ 3,854,800,000	\$ 3,807,900,000
Contributions as a percentage of covered payroll	17.83%	17.37%	16.92%	16.10%	16.25%

\*\*See notes to required supplementary information\*\*

## Notes to Schedule:

The covered payroll is an estimate of the actual payroll, imputed from individual member contributions.

The assumption change in fiscal year 2015 is attributable to the new assumptions adopted by the Board in May 2015.

The assumption change in fiscal year 2016 is attributable to the new economic assumptions adopted by the Board in September 2016.

The beginning balances for the total pension liability and the plan fiduciary net position were both restated as of June 30, 2016 to remove \$434,882,619 which will be reported as an OPEB going forward.

The assumption change in fiscal year 2017 is attributable to the change in assumed election rate for the Supplemental Medical Insurance benefit adopted by the Board in August 2017.

**Teachers' Retirement System of Oklahoma****Required Supplementary Information**

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**Schedule of Investment Returns (Unaudited)****Fiscal Year Ended June 30,**

	Year Ended June 30				
	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expenses	9.88%	14.72%	-2.50%	3.04%	21.95%

\*\*See notes to required supplementary information\*\*

Information to present a 10 year schedule is not currently available.

# Teachers' Retirement System of Oklahoma

## Required Supplementary Information

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### NOTES TO REQUIRED SUPPLEMENTARY INFORMATION:

Actuarially determined contribution rates are calculated as of June 30.

Members and employers contribute based on statutorily fixed rates. The State of Oklahoma contributes 5.0% of revenues from sales taxes, use taxes, corporate and individual income taxes and lottery proceeds. An additional contribution is made for members whose salary is paid from federal funds or certain grant money.

Beginning with fiscal year ending June 30, 2016, the Actuarially Determined Employer Contribution (ADEC) is determined as the employer contribution amount necessary to discharge the Unfunded Actuarial Accrued Liability over a period equal to the funding period for the current actuarial valuation for plan funding purposes (i.e., 17 years as of June 30, 2017). However, in no event shall the amortization period be in excess of a fixed period of twenty (20) years. ADEC rates are calculated as of June 30.

Beginning with the fiscal year ending June 30, 2017, an actuarially determined portion of the employers' contributions (0.07% of pay for FY2018) is allocated to the OPEB Plan and reported under GASB 74. As a result, these contributions are not included in either the actual or actuarially determined contributions above.

The ADEC was previously determined as the total employer contribution necessary to fund the normal cost and to amortize the UAAL as a level percentage of payroll over 30 years.

### Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll
Remaining Amortization period	20 years
Asset valuation method	5-year smooth market
Inflation	2.50%
Salary increase	Composed of 2.5% inflation, plus 0.75% productivity increase rate, plus step-rate promotional increases for members with less than 25 years of service
Investment rate of return	7.50%
Retirement age	Experience-based table of rates based on age, service and gender. Adopted by the Board in May 2015 in conjunction with the five year experience study for the period ending June 30, 2014
Mortality	RP-2000 Combined Mortality Table for males with White Collar Adjustments with fully generational projection by Scale BB from the table's base year of 2000. For females, the GRS Southwest Region Teacher Mortality Table, scaled at 105%, with fully generational projection by Scale BB from the table's base year of 2012.

## Teachers' Retirement System of Oklahoma

## Required Supplementary Information

Schedule of Changes in Employers' Net OPEB (Asset)/Liability (Unaudited)  
Fiscal Years Ended June 30,

	2018	2017
Total OPEB liability:		
Service cost	\$ 6,431,010	\$ 6,647,749
Interest on the total OPEB liability	31,012,327	31,728,895
Benefit changes	-	-
Difference between actual and expected return	(9,813,028)	(14,186,133)
Assumption changes	-	-
Benefit payments	(36,963,620)	(30,309,127)
<b>Net change in total OPEB liability</b>	<b>(9,333,311)</b>	<b>(6,118,616)</b>
Total OPEB liability:		
Beginning	428,764,003	434,882,619
Ending (a)	419,430,692	428,764,003
Plan fiduciary net position:		
Employer contributions	2,912,563	6,513,158
Employee contributions	-	-
OPEB net investment income	44,760,425	62,298,027
Benefit payments	(36,963,620)	(30,309,127)
Administrative expense	(11,427)	(26,457)
<b>Net change in plan fiduciary net position</b>	<b>10,697,941</b>	<b>38,475,601</b>
Plan fiduciary net position:		
Beginning	473,358,220	434,882,619
Ending (b)	484,056,161	473,358,220
<b>Employers' Net OPEB liability (asset) (a)-(b)</b>	<b>\$ (64,625,469)</b>	<b>\$ (44,594,217)</b>

Information to present a 10 year schedule is not currently available.

## Teachers' Retirement System of Oklahoma

## Required Supplementary Information

**Schedule of Employers' Net OPEB Liability (asset) (Unaudited)**  
**Fiscal Years Ended June 30,**

	2018	2017
Total OPEB liability	\$ 419,430,692	\$ 428,764,003
OPEB fiduciary net position	484,056,162	473,358,220
<b>Employers' net OPEB liability (asset)</b>	<b><u>\$ (64,625,470)</u></b>	<b><u>\$ (44,594,217)</u></b>
Employers' fiduciary net position as a percentage of the total OPEB liability	115.41%	110.40%
Covered payroll	\$4,149,557,077	\$4,070,723,673
Employers' net OPEB liability (asset) as a percentage of covered OPEB payroll	(1.56)%	(1.10)%

\*\*See notes to required supplementary information\*\*

Information to present a 10 year schedule is not currently available.



## Teachers' Retirement System of Oklahoma

## Required Supplementary Information

## Schedule of OPEB Contributions From Employers

	2018	2017
Actuarially determined contributions	\$ 2,912,563	\$ 6,513,158
Contributions in relation to the actuarially determined contribution:		
Employers	2,912,563	6,513,158
<b>Contribution deficiency (excess)</b>	<b>\$ -</b>	<b>\$ -</b>
Covered payroll	\$ 4,149,557,077	\$ 4,070,723,673
Contributions as a percentage of covered payroll	0.07%	0.16%

Information to present a 10 year schedule is not currently available.

**Teachers' Retirement System of Oklahoma****Required Supplementary Information**

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**Schedule of OPEB Investment Returns (Unaudited)  
Fiscal Year Ended June 30,**

OPEB Plan	Year Ended June 30	
	2018	2017
Annual money-weighted rate of return, net of investment expenses	9.71%	14.72%

**\*\*See notes to required supplementary information\*\***

Information to present a 10 year schedule is not currently available.

# Teachers' Retirement System of Oklahoma

## Required Supplementary Information

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### NOTES TO SCHEDULE OF CONTRIBUTIONS

The ADEC is the amount needed to fund the normal cost, the anticipated administrative expenses, and a payment towards eliminating the Unfunded Actuarial Accrued Liability (UAAL). The payment towards eliminating the UAAL is based on an closed period of twenty (20) years calculated as a level percentage of future payroll with the initial period beginning on July 1, 2016.

#### Methods and Assumptions Used to Determine Contribution Rates:

Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll
Remaining Amortization period	20 years beginning on July 1, 2016
Asset valuation method	Market
Inflation	2.50%
Salary increase	Composed of 2.5% inflation, plus 0.75% productivity increase rate, plus step-rate promotional increases for members with less than 25 years of service
Investment rate of return	7.50%
Retirement age	Experience-based table of rates based on age, service and tier.
Mortality	RP-2000 Combined Mortality Table for males with White Collar Adjustments with fully generational projection by Scale BB from the table's base year of 2000. For females, the GRS Southwest Region Teacher Mortality Table, scaled at 105%, with fully generational projection by Scale BB from the table's base year of 2012.
Health Care Trend Rates	Due to the nature of the benefit, health care trend rates are not applicable to the calculation of contribution rates.
Expenses	Administrative expenses are explicitly included in the ADEC. Investment expenses are paid through investment returns.

**Teachers' Retirement System of Oklahoma****Supplementary Information**

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**Schedule of Investment Expenses  
For the Year Ended June 30, 2018**

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Investment managers	\$ 67,917,928
Investment consultants	1,091,205
Investment personnel	300,455
<b>Total investment expenses</b>	<b><u>\$ 69,309,588</u></b>

**Teachers' Retirement System of Oklahoma****Supplementary Information**

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**Schedule of Administrative Expenses  
For the Year Ended June 30, 2018**

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Salaries and benefits	\$ 3,084,741
General and miscellaneous	401,520
Professional/consultant fees	539,392
Travel and related expenses	35,247
Depreciation expense	150,548
<b>Total administrative expenses</b>	<b>\$ 4,211,448</b>

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**Teachers' Retirement System of Oklahoma****Supplementary Information**

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**Schedule of Professional/Consultant Fees  
For the Year Ended June 30, 2018**

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Actuarial	\$ 73,038
Medical	9,850
Legal	38,677
Audit	202,469
Data processing	130,651
Miscellaneous	84,707
<b>Total professional/consultant fees</b>	<b>\$ 539,392</b>

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# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA



## Investment Section

## TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA PROFESSIONAL CONSULTANTS AND ADVISORS

### DOMESTIC EQUITY MANAGERS

Aronson + Johnson + Ortiz, *Mid-Capitalization Core*  
Philadelphia, Pennsylvania  
Frontier Capital Management, *Mid-Capitalization Growth*  
Boston, Massachusetts  
Frontier Capital Management Co. LLC, *Small-Capitalization Value*  
Boston, Massachusetts  
Geneva Capital Management Ltd., *Small-Capitalization Growth*  
Milwaukee, Wisconsin  
Hotchkis & Wiley Investment, *Large-Capitalization Value*  
Los Angeles, California  
Hotchkis & Wiley Investment, *Mid-Capitalization Value*  
Los Angeles, California Northern Trust, *Domestic Equity Index*  
Chicago, Illinois  
Neumeier Poma Investment Counsel, LLC, *Small-Capitalization Growth*  
Carmel, California  
Northern Trust Asset Management, *Domestic Equity Index*  
Chicago, Illinois  
Sawgrass Asset Management, LLC, *Large-Capitalization Growth*  
Jacksonville Beach, Florida  
Shapiro Capital Management Company, Inc., *Small-Capitalization Value*  
Atlanta, Georgia  
State Street Global Advisors, *Domestic Equity Index*  
Boston, Massachusetts  
Wasatch Advisors, Inc., *Small-Capitalization Growth*  
Salt Lake City, Utah  
Wellington Management Company, LLP, *Mid-Capitalization Growth*  
Boston, Massachusetts

### INTERNATIONAL EQUITY MANAGERS

Advisory Research, Inc., *Small Capitalization*  
Chicago, Illinois Allianz, *Large Capitalization*  
New York City, New York Causeway Capital Management, LLC, *Large Capitalization*  
Los Angeles, California  
Epoch Investment Partners, Inc., *Small Capitalization*  
New York City, New York  
State Street Global Advisors, *Small-Capitalization Emerging Markets*  
Boston, Massachusetts Wasatch Funds, *Small Capitalization*  
Salt Lake City, Utah  
Wellington Management Company, LLP, *Small Capitalization & Large Capitalization*  
Boston, Massachusetts

### FIXED INCOME MANAGERS

Hoisington Investment Management Co., *Active Duration*  
Austin, Texas  
Loomis, Sayles & Company, LP, *Core+ & High Yield*  
Boston, Massachusetts  
Lord Abbett & Company, LLC, *Core+ & High Yield*  
Jersey City, New Jersey  
MacKay Shields, LLC, *Core+ & High Yield*  
New York City, New York

### MASTER LIMITED PARTNERSHIPS

Chickasaw Capital Management Memphis, Tennessee  
Cushing MLP Dallas, Texas  
Advisory Research, Inc St. Louis, Missouri

### PRIVATE EQUITY MANAGERS

Franklin Park, LLC, Private Equity Bala Cynwyd, Pennsylvania

### REAL ESTATE

AEW Boston, Massachusetts  
American Realty Advisors Glendale, California  
Antheus Capital Englewood, New Jersey  
Dune Real Estate Partners New York City, New York  
GreenOak New York City, New York  
Heitman Real Estate Chicago, Illinois  
L & B Real Estate Advisors Dallas, Texas  
Landmark Partners Simsbury, Connecticut  
Starwood Capital Greenwich, Connecticut

### ADVISORS AND CONSULTANTS

Northern Trust, *Global Custodian/Securities Lending*  
Chicago, Illinois  
AndCo, *Investment Consultant*  
Tulsa, Oklahoma  
Gabriel, Roeder, Smith & Company, *Actuarial Consultant*  
Dallas, Texas  
Eide Bailly, LLP *Independent Auditor*  
Oklahoma City, OK Office of the Attorney General  
Oklahoma City, Oklahoma



## Statement of Investment Policies

The policies and procedures of the Teachers' Retirement System of Oklahoma provide for a prudent and systematic investment process on behalf of its members, allowing for reasonable expenses of administration of the Fund, and providing for an orderly means whereby employees may be retired from active service with all pension benefits allowed by Oklahoma statutes. The Board of Trustees must follow the "prudent investor standard." In making investments, the Board must exercise the judgment, care, skill, prudence, and diligence under the circumstances that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character.

The Board diversifies investments to minimize risk. The investment objectives of the Board, as fiduciaries, are long-term rather than short-term. Board policy takes into consideration actuarial assumptions of the retirement program and any unfunded liabilities.

All investment results are calculated using the time-weighted rate of return based on the market rate of return. The investment balances presented in this section and the financial section are presented using accrual-based accounting.

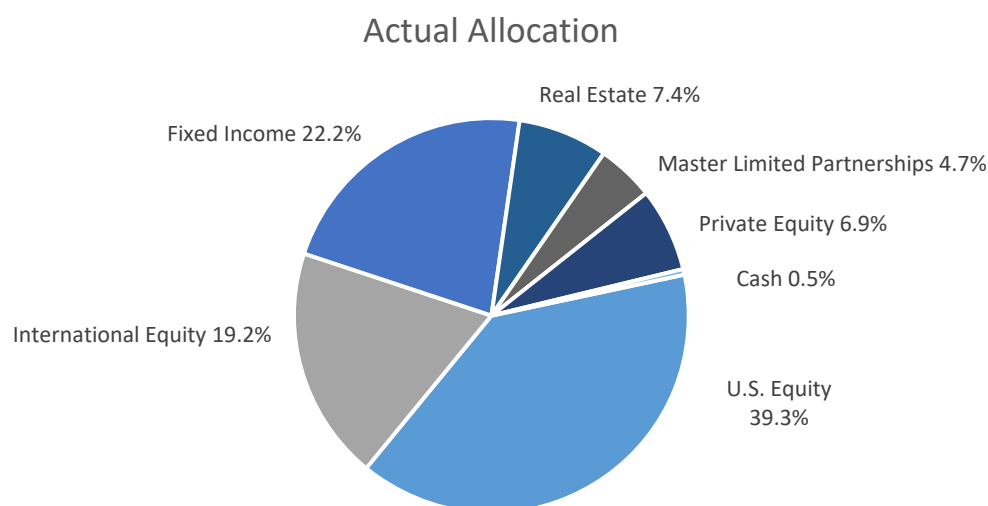
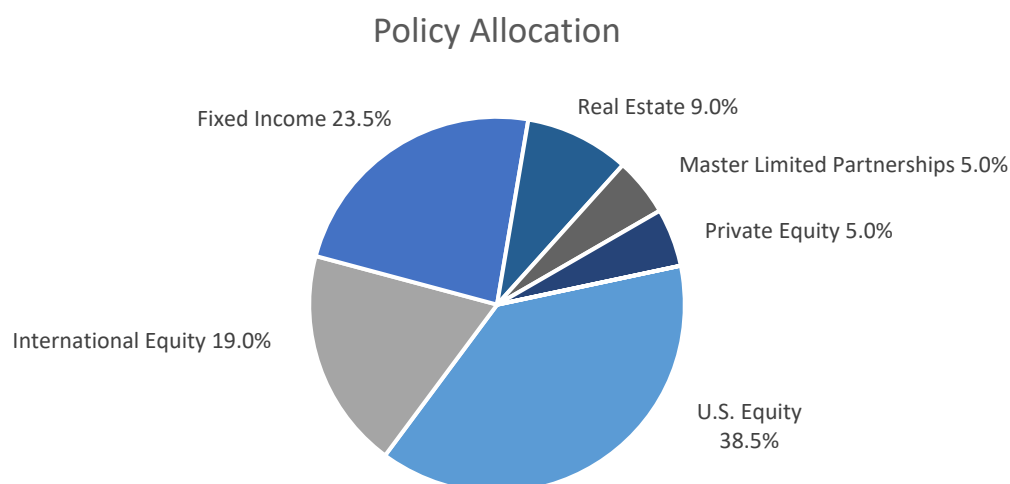
This report was prepared by,

A handwritten signature in dark ink, appearing to read "Joe Cappello". The signature is fluid and cursive, with the first name "Joe" and last name "Cappello" clearly distinguishable.

Joseph Cappello  
Senior Investment Officer

## Investment Allocation Policy

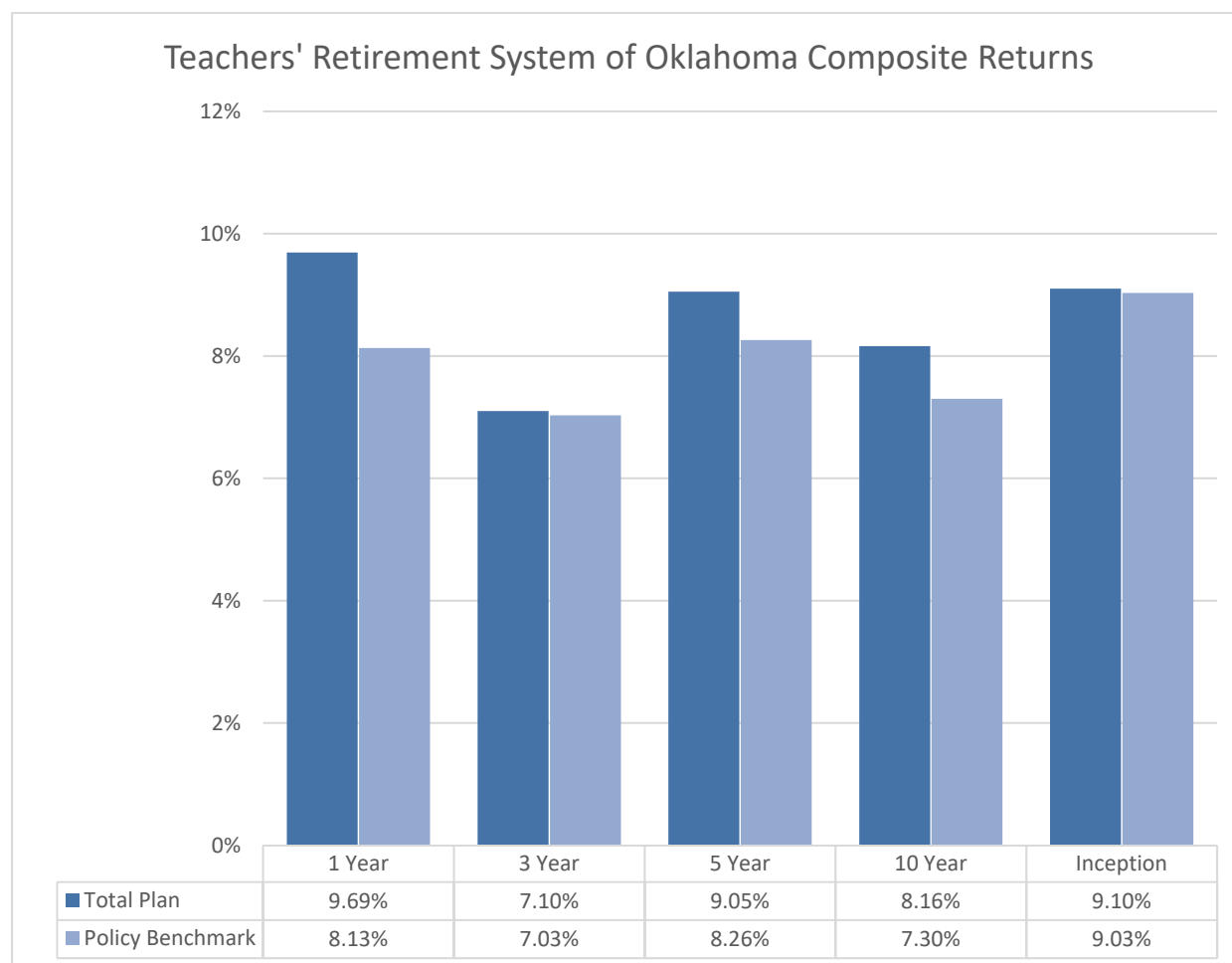
In the pursuit of long-term returns in excess of our 7.5 percent actuarial assumption, while maintaining the goal of capital preservation, the System has adopted a policy of diversified asset allocation. The resulting diversified portfolio is designed to enhance long-term returns while mitigating short-term volatility. The System has a policy allocation of 57.5 percent to domestic and international equities and a 23.5 percent allocation to fixed income. In addition, the System's alternative market investments include a 5 percent allocation to mid-stream energy master limited partnerships, a 5 percent allocation to private equity, and a 9 percent allocation to real estate. All investments are managed by external investment management firms with the exception of an office building expected to house the System. The office building has a market value of \$14,064,186 and it is managed by Oklahoma Teachers' Retirement Fund. Our policy allocation versus our actual allocation as of the end of fiscal year 2018 is shown below.



## Investment Performance

For the Fiscal Year 2018 the Fund realized a time weighted net-of-fee 9.69 percent based upon the market value of assets and accruals.

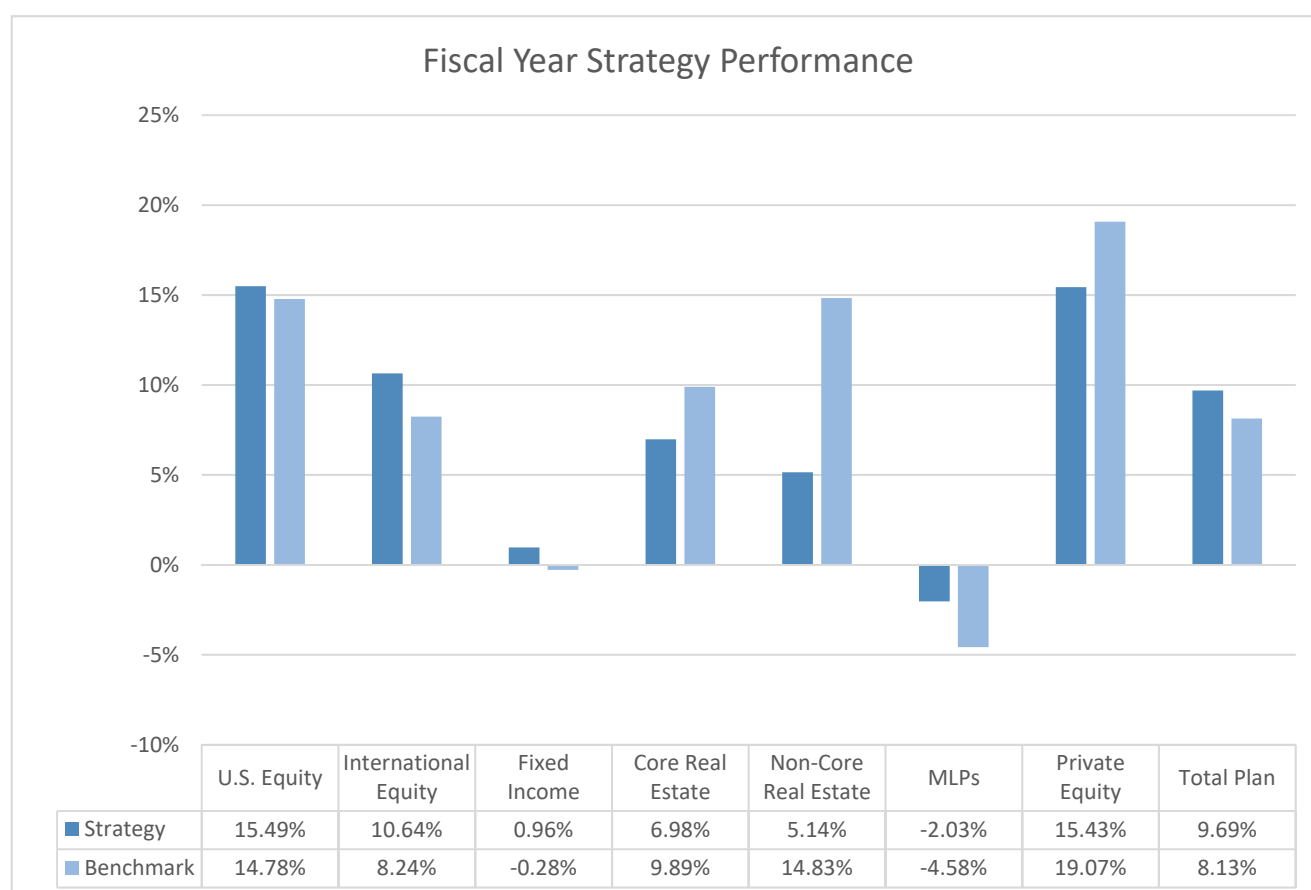
Since inception, December 1, 1991, the Teachers' Retirement System composite has a time-weighted 9.10 percent rate of return, net of fees, while the policy benchmark has returned 9.03 percent. Both return percentages are calculated using the time-weighted rate of return.



## Strategy Performance

To achieve the investment goals set forth by the Oklahoma Teacher's Retirement System Investment Policy Statement, the Board of Trustees employ a strategy of active management. During fiscal year 2018, the U.S. Equity strategy was the best returning strategy with an annual time-weighted rate of return of 15.49 percent. The worst performing was the midstream energy master limited partnership strategy which had a time-weighted rate of return of -2.03 percent for the year.

The net-of-fee time-weighted rates of return for one, three, five, ten, and since inception for each strategy are shown below.



## Benchmark Returns

The policy benchmark consists of 17.5% Russell 1000, 12.5% Russell Midcap, 10% Russell 2000, 15% MSCI All Country World Index Ex-USA, 5% Alerian MLP Total Return, 25% Bloomberg Barclays U.S. Aggregate, 5% ICE Merrill Lynch U.S. High Yield, 5% NCREIF Open-End Diversified Core, and 5% Russell 1000 + 400bp. Below you can see the full list of the System's benchmark returns.

Domestic Equity	One Year	Three Year	Five Year
<b>Oklahoma Teachers' Total Domestic Equity</b>	<b>15.5%</b>	<b>10.5%</b>	<b>12.9%</b>
<i>Russell 3000</i>	14.8%	11.6%	13.3%
<i>Russell 1000</i>	14.5%	11.6%	13.4%
<i>Russell 1000 Value</i>	6.8%	8.3%	10.3%
<i>Russell 1000 Growth</i>	22.5%	15.0%	16.4%
<i>Russell Midcap</i>	12.3%	9.6%	12.2%
<i>Russell Midcap Growth</i>	18.5%	10.7%	13.4%
<i>Russell Mid Cap Value</i>	7.6%	8.8%	11.3%
<i>Russell 2000</i>	17.6%	11.0%	12.5%
<i>Russell 2000 Value</i>	13.1%	11.2%	11.2%
<i>Russell 2000 Growth</i>	21.9%	10.6%	13.6%
International Equity	One Year	Three Year	Five Year
<b>Oklahoma Teachers' Total International Equity</b>	<b>10.6%</b>	<b>6.5%</b>	<b>7.4%</b>
<i>MS AC Wld xUSA IMI</i>	8.2%	5.9%	6.9%
<i>MSCI ACWI xUSA Value</i>	5.3%	4.1%	5.3%
<i>MSCI ACWI ex USA Small Cap GD</i>	11.0%	8.3%	9.4%
<i>MSCI EAFE Sm Cp</i>	12.9%	10.5%	11.7%
Fixed Income	One Year	Three Year	Five Year
<b>Oklahoma Teachers' Total Fixed Income</b>	<b>1.0%</b>	<b>3.3%</b>	<b>3.9%</b>
<i>BB Barclays US Universal</i>	-0.3%	2.1%	2.6%
<i>ICE ML US HY Contr Mstr II Idx</i>	2.5%	5.6%	5.5%
Real Estate	One Year	Three Year	Five Year
<b>Oklahoma Teachers' Total Core Real Estate</b>	<b>7.0%</b>	<b>9.1%</b>	<b>9.7%</b>
<i>NCREIF ODCE Price Index</i>	3.6%	5.3%	6.5%
Master Limited Partnerships	One Year	Three Year	Five Year
<b>Oklahoma Teachers' Master Limited Partnerships</b>	<b>-2.0%</b>	<b>-7.4%</b>	<b>0.2%</b>
<i>Alerian MLP Total Return Index</i>	-4.6%	-5.9%	-4.1%
<b>Oklahoma Teachers' Total Fund</b>	<b>9.7%</b>	<b>7.1%</b>	<b>9.1%</b>

\*Time-Weighted Rates of Return

## Top Holdings

The System's ten largest stock and fixed income holdings by fair value as of June 30, 2018 are listed below.

Security	Ticker	Shares	Market Value
Microsoft Corp	MSFT	790,437	\$ 77,944,993
Apple Inc.	AAPL	420,777	\$ 77,890,030
Energy Transfer Equity L.P.	ETE	3,112,400	\$ 53,688,900
Enterprise Products Partners L.P.	EPD	1,929,900	\$ 53,400,333
Hewlett Packard Enterprise	HPE	3,646,072	\$ 53,269,112
Targa Resources Corp	TRGP	1,019,588	\$ 50,459,410
Oracle Corp	ORCL	1,050,021	\$ 46,263,925
SemGroup Corp	SEMG	1,721,650	\$ 43,729,910
Energy Transfer Partners L.P.	ETP	2,278,900	\$ 43,390,256
Alphabet Inc.	GOOGL	38,256	\$ 43,198,293

Security	Par Value	Market Value
U.S. Treasury Bond 2.25%, due 8/15/2046	251,230,000	\$ 216,371,838
U.S. Treasury Bond 2.5%, due 5/15/2046	107,055,000	\$ 97,277,881
U.S. Treasury Bond 2.5%, due 2/15/2046	85,110,000	\$ 77,380,310
FNMA 4.5%, due 7/25/2043	51,700,000	\$ 53,833,090
U.S. Treasury Note 0.875%, due 6/15/2019	53,275,000	\$ 52,530,002
FNMA 4.0%, due 7/25/2044	47,000,000	\$ 47,916,594
U.S. Treasury Strip, due 11/15/2045	100,000,000	\$ 44,446,700
U.S. Treasury Strip, due 8/15/2045	96,750,000	\$ 43,292,432
U.S. Treasury Note 2.625%, due 6/30/2023	38,394,000	\$ 38,206,522
U.S. Treasury Strip, due 2/15/2046	76,000,000	\$ 33,474,656

A comprehensive list of the Plan's investments at June 30, 2018 may be obtained by contacting the Investment Analyst.

**Investment Expenses by Strategy**

For the Fiscal Year 2018, investment fees paid to investment management firms employed by TRS were as follows:

<b>Account Manager</b>	<b>Account Strategy*</b>	<b>AUM</b>	<b>Total Fees</b>
<b>Advisory Research</b>	MLP*	-	157,082
<b>Advisory Research</b>	International Equities*	931,767	-
<b>AEW</b>	Core Real Estate	301,634,297	2,282,168
<b>Allianz Intl</b>	Intl ACWI Ex US	995,104,435	2,749,877
<b>American Realty</b>	Non-Core Real Estate	60,451,333	766,315
<b>Antheus Capital</b>	Non-Core Real Estate	44,040,209	793,487
<b>Aronson, Johnson &amp; Ortiz</b>	Mid Cap	431,355,116	814,707
<b>Causeway Capital</b>	Intl ACWI Ex US Value	466,210,353	1,599,616
<b>Chickasaw Capital</b>	MLP	286,124,276	1,893,248
<b>Cushing</b>	MLP	488,168,561	1,956,087
<b>Dune</b>	Non-Core Real Estate	52,794,864	1,530,485
<b>Epoch</b>	Intl ACWI Ex US Small Cap	295,605,805	1,936,291
<b>Franklin Park</b>	Private Equity	1,129,677,912	4,094,701
<b>Frontier</b>	Mid Cap Growth	435,820,109	2,565,596
<b>Frontier</b>	Small Cap Value	221,499,985	1,756,024
<b>Geneva Capital</b>	Small Cap Growth	219,869,687	1,527,485
<b>GreenOak</b>	Non-Core Real Estate	46,357,698	1,634,615
<b>Heitman Realty</b>	Core Real Estate	313,839,306	2,186,769
<b>Hoisington Investment Co.</b>	Interest Rate Anticipation	538,006,303	567,690
<b>Hotchkis &amp; Wiley</b>	Large Cap Value	717,829,229	1,901,523
<b>Hotchkis &amp; Wiley</b>	Mid Cap Value	450,098,421	2,324,924
<b>L&amp;B Realty</b>	Real Estate	347,962,312	1,011,707
<b>Landmark</b>	Non-Core Real Estate	22,945,396	222,628
<b>Loomis Sayles</b>	Core Plus Fixed Income	671,772,900	942,915
<b>Loomis Sayles</b>	High Yield Fixed Income	297,859,214	1,431,477
<b>Lord Abbett</b>	Core Plus Fixed Income	659,652,266	1,060,497
<b>Lord Abbett</b>	High Yield Fixed Income	317,837,396	1,054,039
<b>Mackay Shields</b>	Core Plus Fixed Income	643,312,567	1,293,508
<b>Mackay Shields</b>	High Yield Fixed Income	315,296,927	1,139,693
<b>Neumeier Poma</b>	Small Cap Value	197,284,947	1,173,301
<b>Northern Trust</b>	International Equities*	27,686	-
<b>Northern Trust</b>	STIF Account	76,060,858	-
<b>Northern Trust</b>	S&P 500 Index Fund*	7	46,504
<b>Northern Trust</b>	Russell 1000 Index Fund	641,181,492	38,639
<b>Northern Trust</b>	SciBeta US 6 Factor Index	983,937,377	430,787
<b>PIMCO</b>	Private Credit	223,543,533	2,233,009

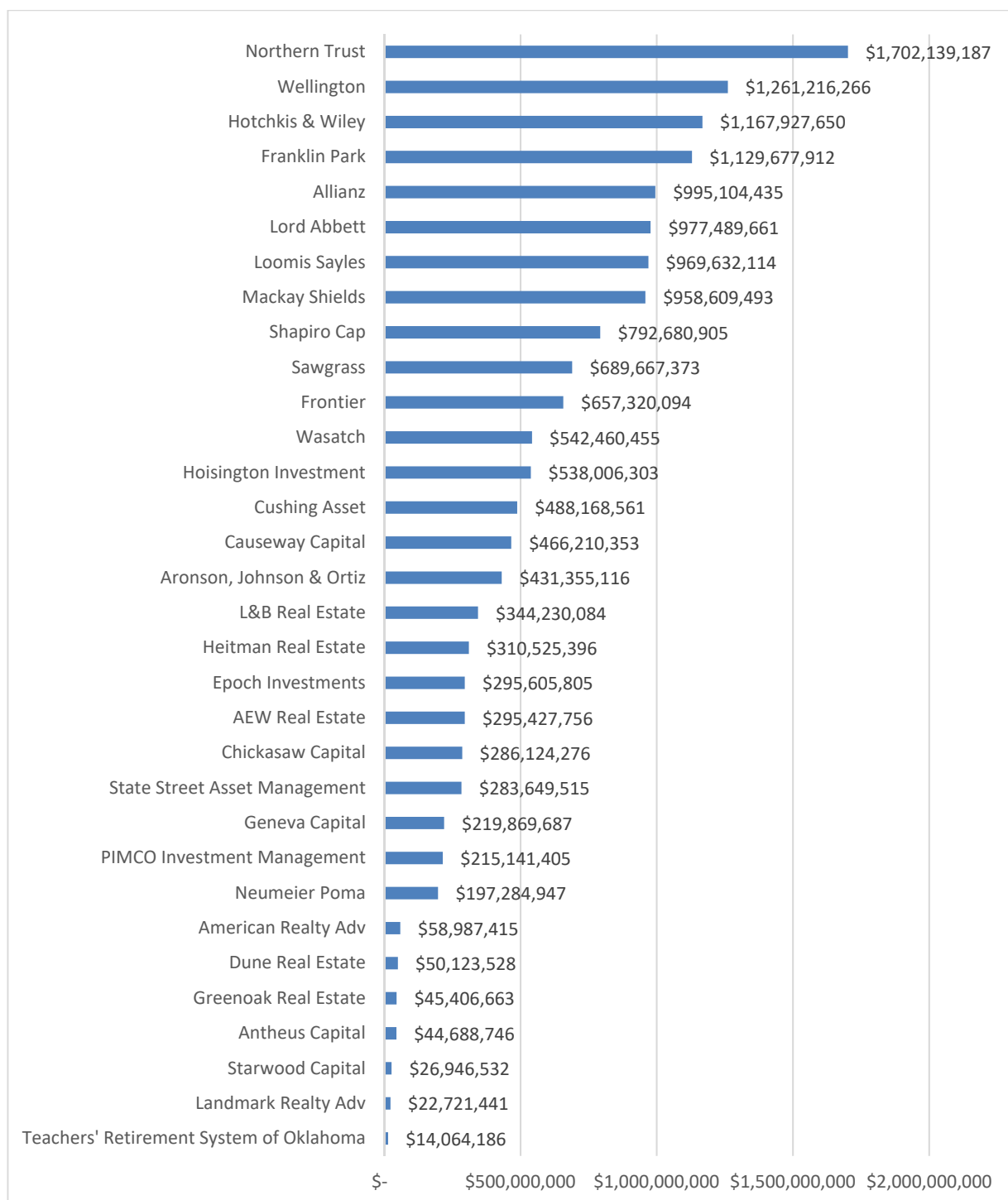
<b>Account Manager</b>	<b>Account Strategy</b>	<b>AUM</b>	<b>Total Fees</b>
<b>Sawgrass</b>	Large Cap Growth	689,667,373	2,115,215
<b>Shapiro Capital</b>	Small Cap Value	792,680,905	4,781,926
<b>State Street</b>	Emerging Markets	283,649,515	1,932,429
<b>State Street</b>	S&P Equal Weight Index*	-	43,200
<b>Starwood</b>	Non-Core Real Estate	28,644,189	1,750,400
<b>TRS</b>	Office Building	14,064,186	-
<b>Wasatch</b>	Small Cap Growth	220,424,197	1,862,670
<b>Wasatch</b>	Intl ACWI Ex US Small Cap	322,036,258	2,464,085
<b>Wellington</b>	Intl ACWI Ex US Small Cap	294,728,730	2,008,397
<b>Wellington</b>	Intl ACWI Ex US Growth	497,220,027	2,665,325
<b>Wellington</b>	Mid Cap Growth	469,267,509	1,174,234
<b>Total Management Fees</b>		<b>16,506,477,435</b>	<b>67,915,274</b>
<b>AndCo Consulting</b>			1,093,860
<b>Investment Dept. Salaries</b>			300,454
<b>Net Pending Purchase/Sales</b>		111,975,695	
<b>Total (exclusive of 403(b))</b>		<b>16,618,453,130</b>	<b>69,309,588</b>

\* Closed account as of 6/30/2018



## Investment Assets by Investment Manager

The Board of Trustees has hired the following investment management firms to manage the assets of the System. The investment managers have full discretion in the management of assets in their portfolios, subject to individual investment styles and the overall guidelines of the System's Investment Policy Statement. The investment assets under management, when rolled up by manager, can be seen below.



**Schedule of Brokerage Commissions**

Year Ended June 30, 2018

<b>Parent Broker</b>	<b>Commission</b>	<b>Shares</b>	<b>Commission per Share (Cents)</b>
Abel/Noser Corp	15,536	1,789,200	0.87
Abg Securities Limited	3,903	111,871	3.49
Abn Amro Clearing Bank N.V.	307	18,912	1.62
Aqua Securities	390	19,500	2.00
Autonomous Research LLP	651	49,416	1.32
B.Riley & Co. LLC	7,703	192,575	4.00
Baader Bank AG	144	2,561	5.63
Banco Btg Pactual S.A.	111	3,935	2.81
Bank Of America Corporation	293,072	16,459,607	1.78
Banque Paribas Paris	913	72,675	1.26
Banque Pictet Et Cie S.A.	278	90,000	0.31
Barclays Bank Plc	92,649	5,680,808	1.63
Bloomberg Tradebook LLC	23,746	1,103,008	2.15
Bmo Capital Markets Corp	11,879	479,846	2.48
Bnp Paribas Securities Ltd.	17,559	5,080,170	0.35
Bny Convergenx Execution Solutions	26,141	1,101,321	2.37
Bradesco S.A. Ctvn	1,319	364,185	0.36
Brasil Plural Cctvm S.A.	307	138,400	0.22
Broadpoint Capital	3,042	152,109	2.00
Brockhouse & Cooper	4,117	411,737	1.00
Btig, Inc.	8,942	269,854	3.31
Buckingham Research	2,236	55,900	4.00
Canaccord Genuity Limited	164	105,370	0.16
Cantor Fitzgerald And Co. Inc.	16,244	540,361	3.01
Capital Institutional Services	829	27,636	3.00
Carnegie A.S.	3,140	207,925	1.51
Charles Schwab And Co., Inc.	1,153	957,525	0.12
China Intl Capital Corp Hk Secs Ltd	617	352,000	0.18
CIBC World Markets Corp.	4,000	100,000	4.00
CIMB Securities, Inc.	1,072	376,798	0.28
Citadel Securities Institutional	1,648	329,535	0.50
Citigroup Global Markets Inc.	297,507	47,792,900	0.62
Cjs Securities Inc	2,783	69,575	4.00
Cl King & Associates New York	1,357	33,925	4.00
CLSA	58,638	15,703,530	0.37
Collins Stewart	2,498	119,280	2.09
Cornerstone Macro LLC	6,671	317,794	2.10
Cowen And Company LLC	51,680	2,573,060	2.01
Craig-Hallum Capital Group LLC	3,032	85,374	3.55
Credit Agricole Securities Inc.	3,039	1,211,900	0.25
Credit Lyonnais Securities	1,994	7,500	26.59
Credit Suisse AG	148,105	12,371,207	1.20
Cuttone & Co. Inc.	71	7,100	1.00
D. Carnegie AB	2,526	52,723	4.79
D.A. Davidson And Co	7,529	194,555	3.87
Daiwa Capital Markets America Inc.	125,887	25,158,416	0.50

Parent Broker	Commission	Shares	Commission per Share (Cents)
Danske Bank A/S	1,161	72,315	1.61
Davy Stockbrokers	1,078	120,634	0.89
Deutsche Bank AG	94,120	11,121,040	0.85
Direct Trading Institutional Inc	3,000	171,431	1.75
Dnb Markets Custody	6,137	927,441	0.66
Dougherty & Company LLC	4,632	153,900	3.01
Drexelhamilton LLC	863	43,163	2.00
Equita Sim S.P.A.	426	14,437	2.95
Erste Group Bank AG	40	1,049	3.81
Evercore Group LLC	7,176	179,400	4.00
Exane S.A.	16,103	827,378	1.95
Fidelity Capital Markets	17,880	1,689,223	1.06
First Analysis Securities Corp.	1,223	61,158	2.00
First Clearing Corporation	66,463	1,661,585	4.00
Friedman Billings and Ramsey	1,262	63,083	2.00
Goldman, Sachs And Co.	205,669	18,112,869	1.14
Goodbody Stockbrokers	399	57,512	0.69
Guggenheim Capital, LLC	9,419	766,173	1.23
Guzman And Company	12,995	1,236,952	1.05
Haitong International Securities Co	4	125	3.58
Hanwha Securities Seoul	266	34,059	0.78
Hsbc Bank PLC	24,957	9,426,234	0.26
Hyundai Securities	10,187	38,932	26.17
ICBC China	315,022	10,500,491	3.00
Ing Bank N.V.	454	4,099	11.09
Instinet, LLC	97,257	12,066,742	0.81
Intermonte Sim S.P.A.	1,258	12,833	9.80
Investec Bank PLC	161	21,570	0.75
Investment Technology Group Inc.	75,883	10,931,226	0.69
Isi Group Inc.	77,762	2,684,214	2.90
Itau Unibanco S/A	10,679	1,497,239	0.71
J.P. Morgan Securities	379,555	26,806,453	1.42
Janney Montgomery Scott	1,352	33,800	4.00
Jefferies International Ltd	91,859	4,741,554	1.94
Jmp Securities	2,267	62,597	3.62
Jnk Securities Inc.	10,318	1,014,706	1.02
Joh. Berenberg, Gossler & Co.	51,567	3,654,925	1.41
Johnson Rice & Company LLC	24,605	822,225	2.99
Jones Trading Institutional	184,229	6,620,576	2.78
KCG Americas LLC	309	18,382	1.68
Keefe, Bruyette And Woods Limited	-	32,638	0.00
Kempen And Co N.V.	1,769	65,419	2.70
Kepler Capital Markets	2,103	51,062	4.12
Kim Eng Securities Hong Kong Ltd.	7,235	238,696	3.03
Korea Investments And Securities Co	1,292	9,825	13.15
Leerink Swan & Company	3,129	78,237	4.00
Liberum Capital Inc.	363	96,840	0.37
Liquidnet Inc.	75,209	7,777,812	0.97
Longbow Securities	314	7,853	4.00

Parent Broker	Commission	Shares	Commission per Share (Cents)
Loop Capital Markets LLC	26	13,500	0.19
Luminex Trading And Analytics	874	349,406	0.25
Macquarie Bank Limited	132,088	22,090,408	0.60
Mcdonald Co., Securities, Inc.	2,223	162,900	1.36
Mediobanca Spa	-	15,000	0.00
Merrill Lynch Piece Fenner & Smith	351,754	111,398,340	0.32
Mirae Asset Daewoo Co., Ltd.	4,150	283,826	1.46
Mitsubishi Ufj Securities	3,564	110,400	3.23
Mizuho Capital Markets	30,797	2,364,877	1.30
Mkm Partners LLC	46	4,600	1.00
Morgan Stanley And Co., LLC	264,140	22,962,496	1.15
National Financial Services LLC	56,853	3,988,659	1.43
Natixis	659	5,488	12.01
Needham And Company LLC	1,686	53,359	3.16
Nomura Securities New York	2,423	35,000	6.92
Northern Trust Company, The	331,214	29,501,062	1.12
Northland Securities	1,378	34,450	4.00
Numis Securities Limited	15,620	1,292,068	1.21
Oddo Et Cie	7,866	158,061	4.98
Oppenheimer And Co, Inc.	9,738	243,548	4.00
Ord Minnett Limited	445	47,827	0.93
Panmure Gordon (Uk) Limited	471	26,096	1.81
Parel	424	8,055	5.27
Peel Hunt LLP	1,493	86,232	1.73
Pershing Securities Limited	82,023	2,685,676	3.05
Piper Jaffray & Co.	22,364	604,917	3.70
Raymond James And Associates	84,357	2,329,785	3.62
RBC Capital Markets, LLC	118,620	7,837,718	1.51
Redburn	16,213	684,555	2.37
Robert W. Baird Co.	80,772	2,054,376	3.93
Rosenblatt Securities Inc.	31,740	2,970,236	1.07
Roth Capital Partners	6,179	154,475	4.00
Royal Bank Of Canada	215	25,047	0.86
Samsung Securities Co., Ltd.	2,626	24,053	10.92
Sandler O'Neil & Partners	50	2,477	2.00
Sanford C. Bernstein And Co., LLC	86,392	19,376,972	0.45
Scotiacleod (U.S.A.) Inc.	5,000	125,000	4.00
Seaport Secs Ny	831	21,325	3.90
Security Capital Brokerage Inc	3,447	114,900	3.00
SG Americas Securities LLC	17,836	1,870,055	0.95
Sidoti & Company LLC	10,919	323,702	3.37
Skandinaviska Enskilda Banken	5,977	317,131	1.88
Smbc Nikko Securities America, Inc.	8,737	353,800	2.47
Societe Generale London Branch	68,292	5,986,040	1.14
Standard Bank PLC	36	1,628	2.21
State Street Bank And Trust Co.	385	99,942	0.39
Stephens Inc.	14,669	379,310	3.87
Stifel Nicolaus & Co	38,886	1,284,813	3.03

<b>Parent Broker</b>	<b>Commission</b>	<b>Shares</b>	<b>Commission per Share (Cents)</b>
Strategas Securities LLC	1,500	37,503	4.00
Sungard Institutional Brokerage	1,044	202,050	0.52
Suntrust Robinson Humphrey, Inc.	4,524	118,325	3.82
Svenska Handelsbanken	68	835	8.11
Telsey Advisory Group LLC	203	10,152	2.00
Themis Trading LLC	24,082	2,523,670	0.95
Toronto Dominion Securities Inc	400	24,853	1.61
U.S. Bank	-	5,000	0.00
UBS Securities LLC	194,698	17,547,356	1.11
Uob Kay Hian Pte Limited	235	76,323	0.31
Wall St Access	2,776	385,398	0.72
Wedbush Morgan Securities	6,235	151,411	4.12
Weeden And Co	9,207	375,154	2.45
Wells Fargo Bank, N.A.	65,192	1,754,776	3.72
William Blair And Company	40,436	1,155,852	3.50
Williams Capital Group L.P.	5	482	1.00
Wolfe Research Securities	6,187	188,076	3.29
XP Investimentos CCTVM	984	176,800	0.56
<b>Grand Total</b>	<b>5,442,810</b>	<b>548,573,293</b>	<b>0.99</b>

## Summary of Investments

### June 30, 2018

<u>Type of Investment</u>	<u>Fair Value</u>	<u>Percentage of Total Fair Value</u>
Fixed Income:		
U S Government Securities	\$ 1,413,277,775	8.50%
Corporate Bonds	1,519,680,308	9.14%
International Bonds	482,921,835	2.91%
Total Fixed Income	3,415,879,918	20.55%
Equities:		
Domestic	7,134,692,372	42.93%
International	3,046,667,401	18.33%
Total Equities	10,181,359,773	61.27%
Other Investments		
Private Equity	1,353,221,445	8.14%
Real Estate	1,232,586,788	7.42%
Total Other Investments	2,585,808,233	15.56%
Short-Term Investments:		
Short-term Investments Northern Trust	354,197,219	2.13%
Money Markets	81,207,987	0.49%
Total Short-Term Investments	435,405,206	2.62%
Total Investments (exclusive of 403(b))	\$ 16,618,453,130	100.0%



# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA



## Actuarial Section



October 12, 2018

Board of Trustees  
Teachers' Retirement System of Oklahoma  
Oliver Hodge Education Building  
2500 N. Lincoln Boulevard, 5<sup>th</sup> Floor  
Oklahoma City, Oklahoma 73105

**SUBJECT: ACTUARIAL VALUATION AS OF JUNE 30, 2018**

Dear Members of the Board:

At the request of the Teachers' Retirement System of Oklahoma (the System), Gabriel Roeder Smith & Company (GRS) has performed the actuarial valuation of the System. The information in the Actuarial Section is based on our annual actuarial valuation report, with the most recent valuation conducted as of June 30, 2018, and is intended to be used in conjunction with the full report.

This letter and the schedules listed below represent GRS' certification of the funded status as required for the financial report for the fiscal year ended June 30, 2018 for the System. In accordance with GASB Statement No. 67, GRS prepared the Sensitivity of the Net Pension Liability, the Schedule of Changes in the Employers' Net Pension Liability and Related Ratios, the Schedule of Employer Contributions, and the Notes to Schedule of Contributions presented in the Financial Section of this report. In accordance with GASB Statement No. 74, GRS prepared the Sensitivity of the Net OPEB Liability, the Schedule of Changes in the Employers' Net OPEB Liability and Related Ratios, the Schedule of Employer Contributions, and the Notes to the Schedule of Contributions presented in the Financial Section of this report. Additionally, GRS prepared the Executive Summary, the Schedule of Increases and Decreases of Benefit Recipients, the Total Experience Gain or Loss, the Solvency Test, and the Schedule of Funding Progress presented in the Actuarial Section of this report. Full actuarial valuation reports have also been provided to the System.

All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the results presented also comply with the requirements of the Oklahoma statutes and, where applicable, the Internal Revenue Code. The undersigned are independent actuaries. They are Enrolled Actuaries and Members of the American Academy of Actuaries, and they are experienced in performing valuations for large public retirement systems. They meet all of the Qualification Standards of the American Academy of Actuaries.



## ACTUARIAL VALUATION

The primary purposes of the actuarial valuation are to determine the adequacy of the current employer contribution rates and the level of dedicated State revenue, to describe the current financial condition of the System, and to analyze changes in the System's condition. In addition, the actuarial valuation produces various summaries of the data.

## FINANCING OBJECTIVES

The member, employer, and "grant matching" contribution rates, as well as the dedicated State revenue, are established by law. Members contribute 7.00% of covered compensation. The contribution rate for employers covered by the Education Employees Service Incentive Plan (EESIP) is 9.50%. For employers not covered by the EESIP—the comprehensive and regional four-year universities—the contribution rate is 8.55%. No employer contribution rate changes are currently scheduled. There is also an additional contribution made by the comprehensive universities, the Initial Funding Surcharge, which is equal to 2.50% of the payroll for those employees who elect to join the Alternate Retirement Plan in lieu of joining the System. This contribution will continue through FY 2034 or until June 30 of the year in which the unfunded actuarial accrued liability of the participating institutions is reduced to zero, if earlier. In addition, the State of Oklahoma contributes a percentage of its revenues from sales taxes, use taxes, corporate income taxes, individual income taxes, and lottery proceeds to the System. This percentage is currently 5.00%, and no changes are scheduled in this rate. Additionally, the System receives "grant matching" contributions from employers for positions whose funding comes from federal sources or certain grants. The matching contribution rate for FY 2018 was 7.80% and will decrease to 7.70% for FY 2019.

For the fiscal year ending June 30, 2018, the dedicated State revenue plus the matching contribution was equivalent to a contribution rate of approximately 8.3% of covered payroll. However, because these contribution sources are unrelated to the covered payroll of the System, our outlook for the future contribution level from these sources also incorporates the prior four years of actual contributions, resulting in a five-year average of 7.7%. The Initial Funding Surcharge has been excluded from this outlook for future contribution levels since it will only be paid for a temporary period of time.

The employer payroll contribution—9.50% for most employers and 8.55% for the comprehensive and regional universities—is projected to average about 9.3% of payroll, so on a combined basis, we expect that the contributing entities will contribute 17.0% of covered payroll ( $7.7\% + 9.3\% = 17.0\%$ ) in the future.

The dedicated State revenue along with the local and matching contributions, when combined with the contributions made by members, are intended to pay for the normal cost and to amortize the unfunded actuarial accrued liability of the System.

### **DEFERRED ASSET LOSSES/GAINS**

The actuarial value of assets is based upon the market value (or, fair value), but asset gains and losses – earnings greater or less than the assumed annual investment return – are recognized at a rate of 20% per year for five years.

The market value of assets returned 9.8% for the fiscal year ending June 30, 2018. The actuarial value of assets had a smaller return of 8.5% due to the continued recognition of asset losses over the past few years but still exceeded the assumed rate of 7.50%. The excess return on an actuarial of assets basis resulted in an asset gain of almost \$154 million and an increase in the System's funded ratio of about 0.7%. It should be noted that results based on the actuarial value, as well as the market value, provide important information about the financial health of the System.

The current actuarial value of \$16.487 billion is \$142 million lower than the market value of \$16.629 billion, and the actuarial value of assets is approximately 99.1% of the market value

### **PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES**

The unfunded actuarial accrued liability (UAAL) as of June 30, 2017 was \$6.538 billion based on the actuarial value of assets and it decreased to \$6.129 billion this year. As a result, the System's funded ratio—actuarial value of assets divided by the actuarial accrued liability—increased from 70.4% to 72.9% as of June 30, 2018. If measured on the market value of assets, the funded ratio would increase slightly to 73.5%. The increase from last year was due to several factors including liability gains resulting largely from salaries increasing more slowly than assumed and more terminations than expected, as well as the asset gain mentioned earlier.

The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure alone is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The period required to completely amortize the UAAL based upon the contribution schedule is called "the funding period." Based upon the current statutory contribution schedule and the market value (or fair value) of assets, the funding period decreased from 17 years as of June 30, 2017 to 14 years in the current valuation. The decrease from last year was due to several factors including liability gains resulting largely from salaries increasing more slowly than assumed and more terminations than expected, as well as an asset gain. Based upon the current contribution and benefit provisions, assuming no actuarial gains or losses in the future, and assuming the market value of assets returns 7.5%, the UAAL is expected to trend steadily down to zero over the next 14 years.

## **BENEFIT PROVISIONS**

Our actuarial valuation as of June 30, 2018 reflects the benefit and contribution provisions set forth in current statutes. HB 1340 was passed during the 2018 State of Oklahoma legislative session and changed the definition on a “nonfiscal retirement bill” for the Oklahoma public retirement systems to include one-time payments that do not permanently increase retirement benefits payable where the maximum amount of such payments is dependent on the System’s funded ratio after the payment. The bill also authorized a payment effective October 1, 2018 for members who have been retired at least five years in an amount equal to the lesser of 2% of the gross annual benefit or \$1,000 subject to a \$350 minimum for members who had at least 20 years of service.

A summary of all major plan provisions contained within this valuation is included in the section titled “Summary of Plan Provisions”.

## **ASSUMPTIONS AND METHODS**

Assumptions are set by the Board of Trustees, taking into account the recommendations of the System’s actuary. The System has an experience investigation study performed every fifth year. Except for certain economic assumptions and the election rate for the supplemental medical insurance benefit, the actuarial assumptions used in this valuation are based upon the 2014 Experience Investigation Study Report, dated May 13, 2015, measuring the experience investigation period FY2010 – FY2014. In September 2016, the Board adopted a decrease in the inflation rate from 3.00% to 2.50% resulting in corresponding 0.50% decreases in the investment return (8.00% to 7.50%), the wage inflation (3.75% to 3.25%) and the payroll growth rate (3.25% to 2.75%). In August 2017, the Board adopted a change in the election rate of the supplemental medical insurance benefit. Fifty percent of eligible members who are active or due a deferred vested benefit are assumed to elect the insurance benefit. For annuitants who began receiving a benefit in the year preceding the valuation date, 50% of those not already receiving the benefit are assumed to elect it. The liability for all other annuitants is based on the actual benefit being paid as shown in the data. The current actuarial assumptions were first utilized in the June 30, 2017 actuarial valuation report.

We believe the assumptions are internally consistent and reasonable, based on the actual experience of the System, and meet the parameters set by Actuarial Standards of Practice issued by the Actuarial Standards Board. The actuarial assumptions and methods used to develop the Schedule of Changes in the Employers’ Net Pension Liability and Related Ratios and the Schedule of Employer Contributions, noted above, meet the parameters set forth for the disclosures presented in the Financial Section by Government Accounting Standards Board Statement No. 67.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

A summary of the actuarial methods and assumptions incorporated into this valuation is included in the section titled “Summary of Actuarial Assumptions and Methods”.



Board of Trustees  
October 12, 2018  
Page 5

### Data

Member data for retired, active, and inactive participants was supplied as of June 30, 2018 by the System's staff. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information as of June 30, 2018 was supplied by the auditors and by the System's staff. GRS is not responsible for the accuracy or completeness of the information provided to us.

Respectfully submitted,  
**Gabriel, Roeder, Smith & Company**



Mark R. Randall, FCA, MAAA, EA  
Chief Executive Officer



R. Ryan Falls, FSA, EA, MAAA  
Senior Consultant



Brad Stewart, ASA, EA, MAAA  
Consultant



## Executive Summary

Item	2018	2017
Membership		
• Number of		
- Active members	88,534	87,795
- Retirees and beneficiaries	63,796	62,391
- Inactive, vested	12,243	11,796
- Inactive, nonvested	13,315	13,070
- Total	177,888	175,052
• Payroll	\$ 4,223 million	\$ 4,116 million
Statutory contribution rates	FY 2019	FY 2018
• Employers in EESIP	9.50%	9.50%
• Regional universities	8.55%	8.55%
• Federal/grant salaries	7.70%	7.80%
• Members	7.00%	7.00%
• State (% of tax revenues)	5.00%	5.00%
Assets		
• Market value	\$ 16,629 million	\$ 15,463 million
• Actuarial value	\$ 16,487 million	\$ 15,516 million
• Return on market value	9.8%	14.7%
• Return on actuarial value	8.5%	9.0%
• State/local/federal contributions	\$ 761 million	\$ 705 million
• External cash flow %	-2.0%	-2.3%
• Ratio of actuarial to market value	99.1%	100.3%
Actuarial Information on Actuarial Value		
• Normal cost %	10.34%	10.34%
• Unfunded actuarial accrued liability (UAAL)	\$ 6,129 million	\$ 6,538 million
• Funded ratio	72.9%	70.4%
• Funding period (years)	14	17
Actuarial Information on Market Value		
• Unfunded actuarial accrued liability (UAAL)	\$ 5,987 million	\$ 6,591 million
• Funded ratio	73.5%	70.1%
• Funding period (years)	14	17
Gains/(losses)		
• Asset experience	\$ 154 million	\$ 218 million
• Liability experience	110 million	395 million
• Benefit changes	0 million	0 million
• Legislative Changes	(18) million	0 million
• Assumption Changes	0 million	482 million
• Total	\$ 246 million	\$ 1,095 million

### Schedule of Active Member Valuation Data Periods Ended June 30

<u>Valuation Date</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Annual Average Pay</u>	<u>% Increase in Average Pay</u>
2009	89,388	3,807,914,178	42,600	0.70%
2010	89,896	3,854,772,123	42,880	0.66%
2011	88,085	3,773,283,867	42,837	-0.10%
2012	87,778	3,924,843,696	44,713	4.38%
2013	89,333	3,933,056,084	44,027	-1.53%
2014	89,570	4,002,883,716	44,690	1.51%
2015	90,388	4,231,846,057	46,819	4.76%
2016	90,167	4,254,783,265	47,188	0.79%
2017	87,795	4,115,686,767	46,878	-0.66%
2018	88,534	4,223,226,379	47,702	1.76%

### Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption.

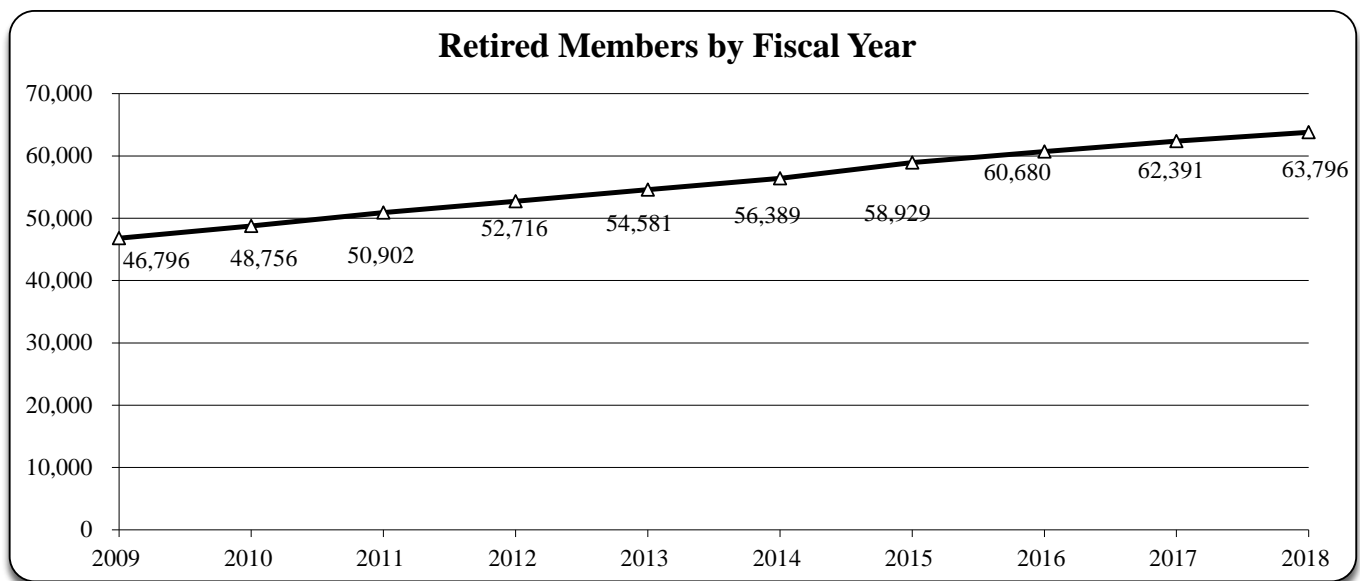
The following table provides the sensitivity of the net pension liability to changes in the discount rate as of June 30, 2018. In particular, the table presents the plan's net pension liability, if it were calculated using a single discount rate that is one-percentage-point lower or one-percentage-point higher than the single discount rate:

<b>1% Decrease</b>	<b>Current Single Rate Assumption</b>	<b>1% Increase</b>
<b>6.50%</b>	<b>7.50%</b>	<b>8.50%</b>
\$8,604,702,854	\$6,051,383,202	\$3,913,823,602

## Schedule of Increases and Decreases of Benefit Recipients Periods Ended June 30

Year Ended	<u>Added to Rolls</u>		<u>Removed from Rolls</u>		<u>Rolls-End of Year</u>		% Increase in Annual <u>Allowances</u>	Average Annual <u>Allowances</u>
	No.	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances		
2009	2,593	77,839,485	1,035	7,161,393	46,796	835,222,838	9.2%	17,848
2010	2,906	47,150,133	946	7,952,632	48,756	874,420,339	4.7%	17,935
2011	2,960	71,573,599	814	6,358,676	50,902	939,635,263	7.5%	18,460
2012	3,003	59,122,021	1,189	10,098,394	52,716	988,658,890	5.2%	18,754
2013	3,305	76,049,460	1,440	22,392,434	54,581	1,042,315,916	5.4%	19,097
2014	3,208	74,367,565	1,400	22,188,183	56,389	1,094,495,298	5.0%	19,410
2015	4,053	96,652,350	1,513	24,486,087	58,929	1,166,661,561	6.6%	19,798
2016	3,420	83,343,346	1,669	27,476,789	60,680	1,222,528,118	4.8%	20,147
2017	3,323	79,639,291	1,612	26,725,994	62,391	1,275,441,415	4.3%	20,443
2018	3,155	74,318,025	1,750	29,816,313	63,796	1,319,943,127	3.5%	20,690

\* Includes post-retirement increases for members who retired in previous years and changes occurring due to plan options which offer a continuing monthly benefit payment to beneficiaries.



## Investment Experience Gain or Loss

Item (1)	Year Ending June 30, 2018 (2)	Year Ending June 30, 2017 (3)
1. Actuarial assets, beginning of year	\$ 15,516,340,027	\$ 14,577,868,730
2. Contributions during year	\$ 1,073,457,707	\$ 998,158,208
3. Benefits and refunds paid	\$ (1,403,816,874)	\$ (1,353,070,031)
4. Administrative expenses	\$ (4,211,448)	\$ (4,054,537)
5. Assumed net investment income at 7.5%:		
a. Beginning of year assets	\$ 1,163,725,502	\$ 1,093,340,155
b. Contributions	40,254,664	37,430,933
c. Benefits and refunds paid	(52,643,133)	(50,740,126)
d. Administrative expenses	<u>(157,929)</u>	<u>(152,045)</u>
e. Total	\$ 1,151,179,104	\$ 1,079,878,917
6. Expected actuarial assets, end of year (Sum of Items 1 through 5)	\$ 16,332,948,516	\$ 15,298,781,287
7. Actual actuarial assets, end of year	\$ 16,486,871,824	\$ 15,516,340,027
8. Asset gain (loss) for year (Item 7 - Item 6)	\$ 153,923,308	\$ 217,558,740



## Solvency Test

The system's funding objective is to meet long term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the system will pay all promised benefits when due – the ultimate test of financial soundness.

A short-term solvency test is one way of evaluating a system's progress under its funding program. In a short-term solvency test, the plan's present assets are compared with:

1. Active member contributions on deposit;
2. The liabilities for future benefits to present retirees;
3. The liabilities for terminated employees with vested benefits; and
4. The liabilities for service already rendered by active members.

In a system that has been following the level contribution rate of payroll financing principle, the liabilities for active member contributions on deposit (liability 1), the liabilities for future benefits to present retirees (liability 2), and the liabilities for terminated employees with vested benefits (liability 3) will be fully covered by present assets except in rare circumstances. In addition, the liabilities for service already rendered by active members (liability 4) will be partially covered by the remainder of present assets. Generally, if the system has been using level contribution rate financing, the funded portion of liability 4 will increase over time. Following is a summary of the solvency test:

## Solvency Test

Actuarial Accrued Liability and Percent of Active Member Payroll for:

	Accumulated Member Contributions Including Interest		Retirees and Beneficiaries Currently Receiving Benefits		Terminated Employees Not Yet Receiving Benefits		Employer Financed Portion of Vested and Nonvested Benefits		Portion of Accrued Liabilities Covered by Assets				
June 30,	(1)	% of Payroll	(2)	% of Payroll	(3)	% of Payroll	(4)	% of Payroll	Actuarial Value of Assets	(1)	(2)	(3)	(4)
2009	\$ 4,563.9	120%	\$ 9,312.4	245%	\$ 398.1	10%	\$ 4,676.6	123%	\$ 9,439.0	100%	52%	0%	0%
2010	4,743.9	123%	10,216.3	265%	419.2	11%	4,601.2	119%	9,566.7	100%	47%	0%	0%
2011	4,931.4	131%	9,316.6	247%	379.9	10%	2,932.9	78%	9,960.6	100%	54%	0%	0%
2012	5,087.4	130%	9,814.2	250%	443.8	11%	3,242.6	83%	10,190.5	100%	52%	0%	0%
2013	5,252.6	134%	10,315.6	262%	469.3	12%	2,935.7	75%	10,861.1	100%	54%	0%	0%
2014	5,221.1	130%	10,780.2	269%	726.8	18%	2,847.5	71%	12,369.0	100%	66%	0%	0%
2015	5,377.9	127%	11,499.9	272%	534.3	13%	3,280.5	78%	13,771.9	100%	73%	0%	0%
2016	5,494.8	129%	12,466.8	293%	610.9	14%	3,620.7	85%	14,577.9	100%	73%	0%	0%
2017	5,572.8	135%	12,602.9	306%	651.1	16%	3,227.3	78%	15,516.3	100%	79%	0%	0%
2018	5,736.4	136%	12,973.2	307%	696.5	16%	3,209.8	76%	16,486.9	100%	83%	0%	0%

Note: Dollar amounts in millions



**Schedule of Funding Progress**  
**(As required by GASB #25)**

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
June 30, 2009	\$9,439.0	\$18,950.9	\$9,512.0	49.8%	\$3,807.9	249.8%
June 30, 2010	\$9,566.7	\$19,980.6	\$10,414.0	47.9%	\$3,854.8	270.2%
June 30, 2011	\$9,960.6	\$17,560.8	\$7,600.2	56.7%	\$3,773.3	201.4%
June 30, 2012	\$10,190.5	\$18,588.0	\$8,397.6	54.8%	\$3,924.8	214.0%
June 30, 2013	\$10,861.1	\$18,973.2	\$8,112.1	57.2%	\$3,933.1	206.3%
June 30, 2014	\$12,369.0	\$19,575.6	\$7,206.6	63.2%	\$4,002.9	180.0%
June 30, 2015	\$13,771.9	\$20,692.6	\$6,920.7	66.6%	\$4,231.8	163.5%
June 30, 2016	\$14,577.9	\$22,193.4	\$7,615.6	65.7%	\$4,254.8	179.0%
June 30, 2017	\$15,516.3	\$22,054.1	\$6,537.8	70.4%	\$4,115.7	158.9%
June 30, 2018	\$16,486.9	\$22,615.9	\$6,129.0	72.9%	\$4,223.2	145.1%

Note: Dollar amounts in millions

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

Fiscal year ending June 30,	2018	2017	2016	2015	2014
<b>Total Pension Liability</b>					
Service Cost	\$ 432,592,587	\$ 446,728,754	\$ 428,904,761	\$ 415,702,261	\$ 409,199,801
Interest	1,586,869,029	1,599,025,933	1,609,511,334	1,538,893,982	1,491,722,137
Benefit Changes	18,410,937	0	0	0	0
Difference between actual & expected experience	(99,947,351)	(373,928,623)	(36,212,168)	(159,980,414)	(105,344,633)
Assumption Changes	0	(482,042,966)	933,294,515	346,488,630	0
Benefit Payments	(1,323,912,271)	(1,281,816,606)	(1,257,276,705)	(1,201,350,907)	(1,153,051,607)
Refunds	(42,940,983)	(40,944,298)	(36,109,832)	(35,240,176)	(28,718,256)
<b>Net Change in Total Pension Liability</b>	<b>\$ 571,071,948</b>	<b>\$ (132,977,806)</b>	<b>\$ 1,642,111,905</b>	<b>\$ 904,513,376</b>	<b>\$ 613,807,442</b>
<b>Total Pension Liability - Beginning</b>	<b>21,625,384,047</b>	<b>21,758,361,853</b>	<b>20,551,132,567</b>	<b>19,646,619,191</b>	<b>19,032,811,749</b>
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 22,196,455,995</b>	<b>\$ 21,625,384,047</b>	<b>\$ 22,193,244,472</b>	<b>\$ 20,551,132,567</b>	<b>\$ 19,646,619,191</b>
<b>Plan Fiduciary Net Position</b>					
Contributions - Employer/State	\$ 757,678,568	\$ 698,695,713	\$ 725,425,216	\$ 728,442,070	\$ 707,052,675
Contributions - Member	312,866,576	292,949,337	294,459,090	303,677,304	301,300,811
Net Investment Income	1,455,605,848	1,945,898,975	(357,443,247)	428,855,748	2,571,707,952
Benefit Payments	(1,323,912,271)	(1,281,816,606)	(1,257,276,705)	(1,201,350,907)	(1,153,051,607)
Refunds	(42,940,983)	(40,944,298)	(36,109,832)	(35,240,176)	(28,718,256)
Administrative Expense	(4,200,021)	(4,028,080)	(4,458,337)	(4,358,938)	(4,282,605)
Other	0	0	0	0	0
<b>Net Change in Plan Fiduciary Net Position</b>	<b>\$ 1,155,097,717</b>	<b>\$ 1,610,755,041</b>	<b>\$ (635,403,815)</b>	<b>\$ 220,025,101</b>	<b>\$ 2,394,008,970</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>14,989,975,076</b>	<b>13,379,220,035</b>	<b>14,449,506,469</b>	<b>14,229,481,368</b>	<b>11,835,472,398</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 16,145,072,793</b>	<b>\$ 14,989,975,076</b>	<b>\$ 13,814,102,654</b>	<b>\$ 14,449,506,469</b>	<b>\$ 14,229,481,368</b>
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 6,051,383,202</b>	<b>\$ 6,635,408,971</b>	<b>\$ 8,379,141,818</b>	<b>\$ 6,101,626,098</b>	<b>\$ 5,417,137,823</b>
<b>Plan Fiduciary Net Position as a Percentage</b>					
<b>of Total Pension Liability</b>	<b>72.74 %</b>	<b>69.32 %</b>	<b>62.24 %</b>	<b>70.31 %</b>	<b>72.43 %</b>
<b>Covered Employee Payroll</b>	<b>\$ 4,149,557,077</b>	<b>\$ 4,070,723,673</b>	<b>\$ 4,206,558,429</b>	<b>\$ 4,338,247,200</b>	<b>\$ 4,304,297,300</b>
<b>Net Pension Liability as a Percentage</b>					
<b>of Covered Employee Payroll</b>	<b>145.83 %</b>	<b>163.00 %</b>	<b>199.19 %</b>	<b>140.65 %</b>	<b>125.85 %</b>

**Notes to Schedule:**

The covered employee payroll is an estimate of the actual payroll, imputed from individual member contributions.

The assumption change in fiscal year 2015 is attributable to the new assumptions adopted by the Board in May 2015.

The assumption change in fiscal year 2016 is attributable to the new economic assumptions adopted by the Board in September 2016.

The beginning balances for the total pension liability and the plan fiduciary net position were both restated as of June 30, 2016 to remove \$434,882,619 which will be reported as an OPEB going forward.

The assumption change in fiscal year 2017 is attributable to the change in assumed election rate for the Supplemental Medical Insurance benefit adopted by the Board in August 2017.

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Schedule of Employer Contributions

FY Ending June 30	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2014	\$602,936,966	\$707,052,675	\$ (104,115,709)	\$ 4,304,297,300	16.43%
2015	550,652,420	728,442,070	(177,789,650)	4,338,247,200	16.79%
2016	723,528,050	725,425,216	(1,897,166)	4,206,558,429	17.25%
2017	689,580,590	698,695,713	(9,115,123)	4,070,723,673	17.16%
2018	705,424,703	757,678,568	(52,253,865)	4,149,557,077	18.26%

### Notes to Schedule of Contributions

**Valuation Date:** June 30, 2018

**Notes** Members and employers contribute based on statutorily fixed rates. The State of Oklahoma contributes 5.0% of revenues from sales taxes, use taxes, corporate and individual income taxes, and lottery proceeds. An additional contribution is made for members whose salary is paid from federal funds or certain grant money.

Beginning with the fiscal year ending June 30, 2016, the Actuarially Determined Employer Contribution (ADEC) is determined as the employer contribution amount necessary to discharge the Unfunded Actuarial Accrued Liability over a period equal to the funding period for the current actuarial valuation for plan funding purposes (i.e., 17 years as of June 30, 2017). However, in no event shall the amortization period be in excess of a fixed period of twenty (20) years. ADEC rates are calculated as of June 30.

Beginning with the fiscal year ending June 30, 2017, an actuarially determined portion of the employers' contributions (0.07% of pay for FY2018) is allocated to the OPEB Subaccount and reported under GASB 74. As a result, these contributions are not included in either the actual or actuarially determined contributions above.

The ADEC was previously determined as the total employer contribution necessary to fund the normal cost and to amortize the UAAL as a level percentage of payroll over 30 years.

#### Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll
Remaining Amortization Period	20 years
Asset Valuation Method	5-year smoothed market
Inflation	2.50%
Salary Increases	Composed of 2.50% inflation, plus 0.75% productivity increase rate, plus step-rate promotional increases for members with less than 25 years of service.
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates based on age, service, and gender. Adopted by the Board in May 2015 in conjunction with the five year experience study for the period ending June 30, 2014.
Mortality	RP-2000 Combined Mortality Table for males with White Collar Adjustments with fully generational projection by Scale BB from the table's base year of 2000. For females, the GRS Southwest Region Teacher Mortality Table, scaled at 105%, with fully generational projection by Scale BB from the table's base year of 2012.

## Summary of Plan Provisions

1. Effective Date: July 1, 1943.
2. Plan Year: Twelve-month period ending June 30th.
3. Administration: The Teachers' Retirement System of Oklahoma is administered by a Board of Trustees, which is responsible for administration of the System and investment of System assets. Four members serve ex officio, while a total of ten others are appointed by the Governor (six), the President of the Senate (two), and the Speaker of the House (two), according to various guidelines. Additionally, a statewide organization representing retired educators shall appoint a member to the Board who shall be a nonvoting member.
4. Type of Plan: The System is a qualified governmental defined benefit retirement plan. For GASB purposes, it is a cost-sharing multiple-employer PERS.
5. Eligibility: All employees of any public school in Oklahoma, including public colleges and universities, are eligible to participate in the System. Classified personnel (teachers, supervisors, principals, registered school nurses, administrators, etc.) are required to participate, beginning at their date of employment. Non-classified employees (all other employees, such as drivers, secretaries, janitors, cooks, etc.) may, but are not required to, participate. Certain other State employees, such as employees of the System itself, participate in the System. Beginning July 1, 2004, new employees hired by the comprehensive universities (Oklahoma University, the Health Sciences Center, and Oklahoma State University) may elect to join an alternate plan provided by the universities in lieu of joining OTRS. The election to join the alternate plan is irrevocable.
6. Maximum Pay: Prior to July 1, 1995, contributions under this System were based on pay up to a maximum dollar amount. Members could choose between a \$40,000 maximum and a \$25,000 maximum. The member's Final Average Compensation was limited by this same maximum, so the member's election affected both benefits and contributions.

The maximum was removed for most members effective July 1, 1995. It no longer applies in determining the required member and employer contributions. It does still have an impact, however. As noted below, benefits based on service earned before July 1, 1995 are limited by the \$40,000 or \$25,000 maximum, whichever was elected. This cap may be modified for members in the Education Employees Service Incentive Plan (EESIP). See Item 22 below discussing the EESIP provisions.

In addition, the cap on salary continued to apply after June 30, 1995 to members employed by one of the comprehensive universities who entered the System before July 1, 1995. The cap on salary for contribution purposes is shown in the schedule below. All caps were removed effective July 1, 2007.

	Elected \$40,000 Maximum	Elected \$25,000 Maximum
1995/1996	\$44,000	\$27,500
1996/1997	49,000	32,500
1997/1998	54,000	37,500
1998/1999	59,000	42,500
1999/2000	59,000	42,500
2000/2001	64,000	47,500
2001/2002	69,000	52,500
2002/2003	74,000	57,500
2003/2004	79,000	62,500
2004/2005	84,000	67,500
2005/2006	89,000	72,500
2006/2007	94,000	77,500
Thereafter	No limit	No limit

Benefits for the members employed by the comprehensive universities, except for those hired on or after July 1, 1995, are limited by the pay caps for the period before July 1, 2007.

7. Member Contributions: Generally, active members contribute 7.00% of all compensation to the System. A school district may pay all or part of the contribution for its employees.
8. Employer Contributions: Employers are required to contribute a fixed percentage of pay on behalf of active members. The employer contribution rate is now applied to all pay, although historically the rate was not applied to pay above the cap on salary.

The employer contribution rate for years from July 1, 2002 through December 31, 2006 was 7.05% of covered salary. Effective January 1, 2007, the employer contribution rate paid by all employers covered by the EESIP increased to 7.60%. This rate then increased to 7.85% effective July 1, 2007, 8.35% effective January 1, 2008, 8.50% effective July 1, 2008, 9.00% effective January 1, 2009, and 9.50% effective January 1, 2010. For employers not covered by the EESIP—the comprehensive and regional four-year universities—the rate increased to 7.55% effective January 1, 2008, 8.05% effective January 1, 2009, and 8.55% effective January 1, 2010.

In addition, the State of Oklahoma contributes 5.00% percent of revenues from sales taxes, use taxes, corporate income taxes and individual income taxes. The 5.00% rate became effective on July 1, 2007. The rates are shown in the following schedule on the next page.

<b>Fiscal Year</b>	<b>State Contribution Percentage</b>
FY 2003	3.54%
FY 2004	3.54%
FY 2005	3.75%
FY 2006	4.00%
FY 2007	4.50%
FY 2008	5.00%
Thereafter	5.00%

Beginning in FY 2006, the State also contributes 5.00% of lottery proceeds.

If a member's salary is paid from federal funds or certain grant money, an additional contribution (the grant matching contribution) is required. The matching contribution rate is set by the Board of Trustees annually and is expressed as a percentage of federal/grant salaries.

<b>Fiscal Year</b>	<b>Federal/Grant Contribution Percentage</b>
FY 2003	5.00%
FY 2004 to 2005	4.50%
FY 2006	5.00%
FY 2007 to 2008	7.00%
FY 2009 to 2010	7.50%
FY 2011	6.50%
FY 2012	7.00%
FY 2013	8.00%
FY 2014 to 2016	8.25%
FY 2017	7.70%
FY 2018	7.80%
FY 2019	7.70%

9. Service: Employees receive credit for a year of service if they are contributing members for at least six months within one school year. For service performed on or after July 1, 2013, fractional service will be awarded for less than full-time employment performed during the contract year. Fractional service credit will be added together and the resulting sum will be included in the retirement formula calculations. For service performed on or after July 1, 2016 service credit awarded for all members will be the result of the days the employee worked during the employment year divided by the days the full-time equivalent for that position would be required to work during the entire employment year.

Credit may also be granted for service prior to the System's effective date, and non-classified employees can purchase credit for their prior service once they have joined the System. Credit is also available for some out-of-state and military service under certain circumstances.

Finally, members receive a year of service credit if they have accumulated 120 days of unused sick leave at termination. As of August 1, 2012, if a member has less than 120 days of unused sick leave at termination, additional service credit for sick leave days shall be equal to the number of unused sick leave days divided by 120 days.



10. Final Average Compensation (FAC): The average of the member's compensation for the three or five years on which the highest contributions are paid. For persons becoming members before July 1, 1992, the averaging period is three years. For other members, the averaging period is five years. For service prior to July 1, 1995, the FAC is limited to \$40,000 or \$25,000, depending on the member's election and participation in the EESIP as discussed in Item 6 above and in Item 22.
11. Normal Retirement
- a. Eligibility: A member is eligible to retire and receive a Normal Retirement benefit if (i) the member is at least age 62 and has credit for five or more years of service, or (ii) the sum of the member's age and service is at least 80 (Rule of 80). For members joining after June 30, 1992, a "Rule of 90" is used instead of the "Rule of 80". Members joining after October 31, 2011 are eligible if (i) the member is at least age 65 and has credit for five or more years of service, or (ii) the member is at least age 60 and meets the "Rule of 90". Members joining after October 31, 2017 must have credit for seven or more years of service.
  - b. Monthly Benefit: 2% of FAC (limited to \$40,000 or \$25,000, as appropriate) times years of service prior to July 1, 1995, plus 2% of FAC (unlimited) times years of service after June 30, 1995. Special provisions apply to members covered by the EESIP (see Item 22 below). Other special provisions apply to higher education members for service during the period July 1, 1995 through June 30, 2007 if their pay in any year in this period exceeded the applicable maximum. Monthly benefits are equal to one-twelfth of the calculated amount.
  - c. Payment Form: Benefits are paid as a monthly life annuity, with a guarantee that if the payments made do not exceed the member's accumulated contributions, determined as of the date of retirement, the balance will be paid in a lump-sum to the member's beneficiary. This payment form is referred to as the "Maximum Option" since it initially provides the largest annuity. Optional forms of payment are available; see below.
12. Early Retirement
- a. Eligibility: A member is eligible to retire early if the member is at least age 55 and has credit for five or more years of service, or at any age after 30 years of service. For members joining after October 31, 2011, a member is eligible to retire early if the member is at least age 60 and has credit for five or more years of service. Members joining after October 31, 2017 must have credit for seven or more years of service.
  - b. Monthly Benefit: The Normal Retirement benefit (based on current years of service) multiplied by the applicable early retirement factor below.

## c. Early Retirement Factor:

Retirement Age	Actuarial Equivalent Factors for Members Joining before November 1, 2011*	Statutory Factors for Members Joining after October 31, 2011
65 or later	1.000000	1.00
64	1.000000	0.93
63	1.000000	0.86
62	1.000000	0.80
61	0.913529	0.73
60	0.835549	0.65
59	0.765083	N/A
58	0.701285	N/A
57	0.643419	N/A
56	0.590845	N/A
55	0.543003	N/A
54	0.499406	N/A
53	0.459624	N/A
52	0.423278	N/A
51	0.390033	N/A
50	0.359593	N/A

\* Reduction factors will change as the System's definition of Actuarial Equivalence changes. Factors stated here were communicated to the System in 2018.

## d. Payment Form: Same as for Normal Retirement above.

13. Disability Retirement

- a. Eligibility: A member is eligible provided (i) he/she has credit for at least 10 years of service and (ii) the disability is either approved by the Medical Board appointed by the Board of Trustees, or the member is determined to be eligible for disability benefits pursuant to the Social Security System.
- b. Monthly Benefit: Same as for Normal Retirement above (based on current service).
- c. Payment Form: The disability benefit commences immediately upon the member's retirement. Benefits are reduced or cease entirely upon recovery or reemployment prior to age 60. Disability benefits are payable as a monthly life annuity, with a guarantee that if the payments made do not exceed the sum of the member's accumulated contributions as of the date of retirement, the balance will be paid in a lump-sum to the member's beneficiary. A married, disabled member may elect a reduced benefit under the Joint & 100% Survivor option (with pop up) form of payments (Option 2 described in Item 17 below).

14. Vested Termination Benefit

- a. Eligibility: A member with at least 5 years of service who does not withdraw his/her contributions from the fund is eligible for a vested termination benefit. Members joining after October 31, 2017 must have credit for seven or more years of service.
- b. Monthly Benefit: Same as for Normal Retirement above (based on current service). If benefits commence prior to age 62 (age 65 for members joining after October 31, 2011), they may be reduced for Early Retirement above.
- c. Payment Form: Same as for Normal Retirement above.

15. Withdrawal (Refund) Benefit

- a. Eligibility: All members leaving covered employment with less than 5 years of service (7 years for members joining after October 31, 2011) for a reason other than the member's death. Optionally, members eligible for other benefits may withdraw their contributions in lieu of the regular benefits due.
- b. Benefit: The member who withdraws receives a lump-sum payment of his/her employee contributions, plus a portion of the interest credited by the System on these contributions. Interest is credited at an annual rate of 8%. The portion of the interest paid on termination depends on the member's years of service as follows:

Years of Service	Percent of Interest Refunded
0-15	50%
16-21	60%
22-25	75%
26 or more	90%

16. Death in Service

- a. Eligibility: Death must have occurred while an active member.
- b. Benefit: Upon the death of an active member, a refund of the member's contributions and 100% of the interest credited is paid. In addition, a lump sum of \$18,000 will be paid. If the member is eligible for retirement (early or normal) at the time of death, and the member is married, the spouse may elect to receive a monthly life annuity equal to the retirement benefit for which the member was eligible, reduced as though the member had elected to receive benefits under Option 2 (see below). This annuity is paid in lieu of both (i) the \$18,000 lump-sum death benefit and (ii) the refund of contributions.

The spouse of an EESIP eligible member can elect to receive the enhanced benefit described under Item 22 below.

17. Optional Forms of Payment: In addition to the “Maximum Option” described under Normal Retirement, above, there are optional forms of payment available on an actuarially equivalent basis, as follows:
- a. Option 1 - A modified cash refund annuity payable for life with a guaranteed refund of the member's contributions and interest, less the total of the “annuity” payments paid. (The “annuity” payment is the portion of the monthly benefit provided by the member’s own account balance.)
  - b. Option 2 - A joint life annuity payable while both the member and the joint annuitant are alive; and if the member dies before the joint annuitant, continuing without change to the joint annuitant; or if the joint annuitant dies before the member, “popping-up” to the original life annuity amount and continuing for the life of the member.
  - c. Option 3 - A joint life annuity payable while both the member and the joint annuitant are alive; and if the member dies before the joint annuitant, continuing at 50% of this amount for the joint annuitant's lifetime; or if the joint annuitant dies before the member, “popping-up” to the original life annuity amount and continuing for the life of the member.
  - d. Option 4 - A life annuity with a guarantee that if the member dies before 120 payments (10 years) have been made; the payments will be continued to the member's beneficiary for the balance of the ten-year period.
  - e. PLSO Option - A partial lump-sum option (PLSO) is allowed for those members with at least 30 years of service upon retirement. The amount of the PLSO is equal to 12, 24, or 36 times the member’s monthly retirement benefit, determined before applying any reduction for the PLSO or any other optional form of payment. A member who elects to receive a PLSO will have his/her monthly retirement benefit reduced on an actuarial basis to compensate for the fact that a PLSO is provided. A member who elects a PLSO may elect any of the other optional forms of payment as well, taking a further reduction in the annuity amount.

Actuarial equivalence is based on tables adopted by the Board of Trustees.

18. Special Retirees: This is a group of retirees who have been granted a special \$150 per month benefit although they did not fulfill the requirements for service retirement. With cost of living increases, the special retirees now average \$195 per month.

19. Supplemental Medical Insurance

- a. Eligibility: All retired members (including service retirees and disabled retirees but excluding the special retirees and spouses or beneficiaries) who have at least 10 years of service credit are eligible for a supplemental medical insurance payment.
- b. Monthly Benefit: Eligible members receive the smaller of (i) a Medicare supplement benefit, if eligible, or (ii) an amount between \$100 and \$105 per month, depending on service and Final Average Compensation.
- c. Payment Form: Benefits are payable as a life annuity on behalf of the retired member to (i) the Oklahoma Employees' Group Insurance Plan, if the member has health coverage under this Plan, or (ii) to the member's former employer, if the member retains health coverage under a plan maintained by the former employer.

20. Post-retirement Death Benefit

- a. Eligibility: All retired members (including service retirees and disabled retirees but excluding the special retirees and spouses or beneficiaries) are eligible for a post-retirement death benefit.
- b. Benefit: A lump-sum payment of \$5,000.

21. Cost-of-living Increase: From time to time, the System has been amended to grant certain post-retirement benefit increases. However, the System has no automatic cost-of-living increase features.

22. EESIP: The Education Employees Service Incentive Plan (EESIP) was created in 2006. Active members are eligible for the EESIP if they have service prior to July 1, 1995, are active on or after July 1, 2006, and are not employed by one of the comprehensive or regional four-year universities.

The EESIP allows for two years of service prior to July 1, 1995 to be computed at an enhanced or eliminated cap for each year that the employee has worked beyond Normal Retirement Age at the time of retirement.

For each "uncapped" year, the \$40,000 cap applicable to service before July 1, 1995 is increased to \$60,000 for retirements in FY 2007, to \$80,000 for retirements in FY 2008, and the cap is removed beginning July 1, 2008. The employee that elects the enhanced benefit must pay the accumulations, at 10% interest, of contributions that would have been required but for the cap then in place. Payment is required only for years FY 1988 through FY 1995 even if more than 8 years of service prior to July 1, 1995 are being "uncapped." Payment is required only for those years of service that are computed at an elevated or eliminated cap.

Contributions are required at the following rates for salary in excess of the \$25,000 or \$40,000 cap earned in years FY 1998 through FY 1995:

Fiscal Year	Contribution Percentage
FY 1995	8.00%
FY 1994	9.00%
FY 1993	11.00%
FY 1992	11.00%
FY 1991	11.00%
FY 1990	10.50%
FY 1989	10.00%
FY 1988	10.00%

For those members electing the enhanced benefit, the payment required is 50% of the accumulated balance in FY 2007, 75% of the accumulated balance in FY 2008 and 100% of the accumulated balance on or after FY 2009.

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Schedule of Employer Contributions

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2017	\$ 6,513,158	\$ 6,513,158	\$ 0	\$ 4,070,723,673	0.16 %
2018	2,912,563	2,912,563	0	4,149,557,077	0.07 %

### Notes to Schedule of Contributions

**Valuation Date:** June 30, 2018

**Notes** The ADEC is the amount needed to fund the normal cost, the anticipated administrative expenses, and a payment towards eliminating the Unfunded Actuarial Accrued Liability (UAAL). The payment towards eliminating the UAAL is based on a closed period of twenty (20) years calculated as a level percentage of future payroll with the initial period beginning on July 1, 2016.

**Methods and Assumptions Used to Determine Contribution Rates:**

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll
Remaining Amortization Period	20 years beginning on July 1, 2016
Asset Valuation Method	Market
Inflation	2.50%
Salary Increases	Composed of 2.50% inflation, plus 0.75% productivity increase rate, plus step-rate promotional increases for members with less than 25 years of service.
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates based on age, service, and tier.
Mortality	RP-2000 Combined Mortality Table for males with White Collar Adjustments with fully generational projection by Scale BB from the table's base year of 2000. For females, the GRS Southwest Region Teacher Mortality Table, scaled at 105%, with fully generational projection by Scale BB from the table's base year of 2012.
Health Care Trend Rates	Due to the nature of the benefit, health care trend rates are not applicable to the calculation of contribution rates.
Expenses	Administrative expenses are explicitly included in the ADEC. Investment expenses are paid through investment returns.

## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

### Schedule of Changes in the Employers' Net OPEB Liability and Related Ratios

Fiscal year ending June 30,	<b>2018</b>	<b>2017</b>
<b>Total OPEB liability</b>		
Service cost	\$ 6,431,010	\$ 6,647,749
Interest on the total OPEB liability	31,012,327	31,728,895
Changes of benefit terms	0	0
Difference between expected and actual experience	(9,813,028)	(14,186,133)
Changes of assumptions	0	0
Benefit payments, including refunds of employee contributions	(36,963,620)	(30,309,127)
<b>Net change in total OPEB liability</b>	<b>(9,333,311)</b>	<b>(6,118,616)</b>
<b>Total OPEB liability - beginning</b>	<b>428,764,003</b>	<b>434,882,619</b>
<b>Total OPEB liability - ending (a)</b>	<b>\$ 419,430,692</b>	<b>\$ 428,764,003</b>
<b>Plan fiduciary net position</b>		
Employer contributions	\$ 2,912,563	\$ 6,513,158
Employee contributions	0	0
OPEB plan net investment income	44,760,425	62,298,028
Benefit payments, including refunds of employee contributions	(36,963,620)	(30,309,127)
OPEB plan administrative expense	(11,427)	(26,457)
Other	0	0
<b>Net change in plan fiduciary net position</b>	<b>10,697,941</b>	<b>38,475,602</b>
<b>Plan fiduciary net position - beginning</b>	<b>473,358,221</b>	<b>434,882,619</b>
<b>Plan fiduciary net position - ending (b)</b>	<b>\$ 484,056,162</b>	<b>\$ 473,358,221</b>
<b>Net OPEB liability - ending (a) - (b)</b>	<b>\$ (64,625,470)</b>	<b>\$ (44,594,218)</b>
<b>Plan fiduciary net position as a percentage of total OPEB liability</b>	<b>115.41 %</b>	<b>110.40 %</b>
<b>Covered-employee payroll</b>	<b>\$ 4,149,557,077</b>	<b>\$ 4,070,723,673</b>
<b>Net OPEB liability as a percentage of covered-employee payroll</b>	<b>(1.56)%</b>	<b>(1.10)%</b>

**Notes to Schedule:**

-- The covered employee payroll is an estimate of the actual payroll, imputed from individual employer contributions.



## Summary of Actuarial Assumptions and Methods

### *I. Valuation Date*

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### *II. Actuarial Cost Method*

Because the employer contribution rate is set by statute, the actuarial valuation is used to determine the number of years required to amortize the Unfunded Actuarial Accrued Liability (UAAL), or the funding period.

The Individual Entry Age Normal actuarial cost method assigns the plan's total unfunded liabilities (the actuarial present value of future benefits less the actuarial value of assets) to various periods. The unfunded actuarial accrued liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation. The remaining costs are the normal costs that will be recognized in future years. The resulting actuarially determined contribution requirement is composed of (i) the applicable year's normal cost, plus (ii) a payment intended to reduce the unfunded actuarial accrued liability.

The normal contribution is determined using the Individual Entry Age Normal method. Under this method, a calculation is made to determine the rate of contribution which, if applied to the compensation of each individual member during the entire period of anticipated covered service, would be required to meet the cost of all benefits payable on his behalf. The salary-weighted average of these rates is the normal cost rate. This calculation reflects the plan provisions that apply to each individual member. The employer normal cost rate is equal to (i) the normal cost rate, plus (ii) the expected administrative expenses, minus (iii) the member contribution rate.

The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of assets.

The funding period is calculated as the number of years required to fully amortize the UAAL, assuming that: (a) future market earnings, net of investment-related expenses, will equal 7.50% per year, (b) there will be no liability gains/losses or changes in assumptions, (c) the number of active members will remain unchanged, (d) active members who leave employment will be replaced by new entrants each year, and (e) employer contributions and dedicated State revenue will remain the same percentage of payroll as projected for the current fiscal year.

The Entry Age actuarial cost method is an "immediate gain" method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

### III. Actuarial Value of Assets

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of actual investment return in excess of expected investment return. The actual return is calculated net of investment-related expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, administrative expenses, benefits paid, and refunds.

Prior to the June 30, 2015, the actual and expected returns on plan assets were also determined net of administrative expenses.

### IV. Actuarial Assumptions

#### A. Economic Assumptions

1. Investment return: 7.50% per year, net of investment-related expenses and compounded annually, composed of an assumed 2.50% inflation rate and a 5.00% real rate of return.
2. Administrative expenses: 0.10% of valuation payroll per year
3. Salary increase rate: A 3.25% wage inflation component, including 2.50% price inflation, plus a service-related component as shown below:

<u>Years of Service</u>	<u>Service-Related Component</u>	<u>Total Salary Increase Rate</u>
(1)	(2)	(3)
0	8.00%	11.25%
1-2	1.50%	4.75%
3-4	1.25%	4.50%
5-11	1.00%	4.25%
12-17	0.75%	4.00%
18-21	0.50%	3.75%
22-24	0.25%	3.50%
25 or more	0.00%	3.25%

4. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 2.75% per year. This increase rate has no allowance for future membership growth.
5. Future ad hoc cost-of-living increases: None.

## B. Demographic Assumptions

1. Mortality rates - after retirement or termination.
  - a. Healthy males – RP-2000 Combined Healthy mortality table for males with White Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table's base year of 2000.
  - b. Healthy females – GRS Southwest Region Teacher Mortality Table, scaled at 105%. Generational mortality improvements in accordance with Scale BB from the table's base year of 2012.
  - c. Disabled males – RP-2000 Mortality Table for disabled males, multiplied by 75%, no set back.
  - d. Disabled females – RP-2000 Mortality Table for disabled females, multiplied by 100%, no set back.
2. Mortality rates for active members – RP-2000 Employee Mortality tables, with male rates multiplied by 60% and female rates multiplied by 50%.

Mortality Improvement: The nondisabled annuity mortality assumption includes an explicit generational mortality improvement assumption. To account for future mortality improvement for disabled annuitants and active members, the tables and table multipliers selected above were chosen so that the assumed mortality rates are smaller than the rates observed in the last experience study, covering experience for FY 2010 – FY 2014. The ratio of the actual number of deaths occurring during this period to the expected number based on the selected assumptions was:

- 116% for disabled male annuitants
- 120% for disabled female annuitants
- 127% for active male members
- 116% for active female members

3. Disability rates - Based on 2015 Experience Study, males and females separate. Sample rates are shown below:

Age	Expected Disabilities Occurring per 100 Lives	
	Male Members	Female Members
(1)	(2)	(3)
25	0.023	0.020
30	0.023	0.020
35	0.032	0.040
40	0.059	0.100
45	0.090	0.160
50	0.270	0.240
55	0.405	0.370
60	0.158	0.260
65	0.000	0.000

Disability rates are applied only for members with 10 or more years of service, since rates were developed based on exposure for this group.

4. Termination Rates – Rates based on the member’s service, developed from the 2015 Experience Study. Rates reflect terminations for causes other than death, disability or retirement. Sample rates are shown below:

Expected Terminations per 100 Lives

Credited Service (Years)	Males and Females
(1)	(2)
0	23.00
1	18.00
2	13.00
3	11.00
4	9.00
5	8.25
6	7.50
7	6.75
8	6.00
9	5.25
10	4.50
11	4.25
12	4.00
13	3.75
14	3.50
15	3.25
16	3.00
17	2.75
18	2.50
19	2.25
20	2.00
21	1.75
22	1.75
23	1.50
24	1.50
25 or more	0.00

Termination rates are not applied to a member who is eligible for a retirement benefit (reduced or unreduced).

5. Retirement rates - Separate male and female rates, based on age, developed from the 2015 Experience Study. Sample rates are shown below:

	Expected Retirements per 100 Lives			
	Unreduced Retirement		Reduced Retirement	
Age	Males	Females	Males	Females
Under 50	0.0	0.0	0.0	0.0
50	12.0	12.5	0.0	0.0
51	12.0	12.5	0.0	0.0
52	12.0	12.5	0.0	0.0
53	12.0	12.5	0.0	0.0
54	12.0	12.5	0.0	0.0
55	12.0	12.5	1.0	1.5
56	12.0	14.0	1.8	2.0
57	12.0	14.0	2.0	2.3
58	12.0	14.0	2.3	2.5
59	12.0	16.0	2.5	2.8
60	12.0	16.0	2.8	3.0
61	15.0	20.0	3.0	3.5
62	21.0	25.0	10.0	10.0
63	19.0	20.0	7.5	7.5
64	15.0	20.0	7.5	7.5
65	25.0	25.0		
66	22.5	25.0		
67	22.5	25.0		
68	20.0	22.5		
69	20.0	22.5		
70	20.0	22.5		
71	20.0	22.5		
72	20.0	22.5		
73	20.0	22.5		
74	20.0	22.5		
75 and over	100.0	100.0		

The retirement assumption was further modified for members hired after June 30, 1992. The probability of retirement upon first eligibility for Rule of 90 reflects the accumulated probability of retirement between Rule of 80 and Rule of 90, as applicable.

C. Other Assumptions

1. Percent married: 80% of employees are assumed to be married.
2. Age difference: Males are assumed to be three years older than females.
3. Percent electing annuity on death (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity, in lieu of the \$18,000 lump sum and refund.
4. Percent electing deferred termination benefit: vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
5. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at age 62 (age 65 if hired on or after November 1, 2011).
6. Supplemental medical insurance: 50% of eligible members who are active or due a deferred vested benefit are assumed to elect the insurance benefit. For annuitants who began receiving a benefit in the year preceding the valuation date, 50% of those not already receiving the benefit are assumed to elect it. The liability for all other annuitants is based on the actual benefit being paid as shown in the data.
7. Members who retire with at least 24 years of credited service are assumed to have 120 days of unused sick leave for which they will receive one year of service credit. This assumption only applies to reduced and unreduced retirement.
8. No assumption was made that current active members employed by the comprehensive universities will elect to transfer out of OTRS.
9. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.
10. For EESIP eligible employees, if the refund amount to be paid exceeds the actuarial present value of the additional benefit, then we assume the member does not elect the enhanced benefit.
11. Decrement timing: Decrements of all types are assumed to occur mid-year.

V. Participant Data

Participant data was supplied on an electronic file for (i) active members, (ii) inactive vested members who are entitled to a future deferred benefit, (iii) inactive nonvested members who are entitled to a refund of their employee contributions, and in some cases a portion of the accumulated interest, and (iv) members and beneficiaries receiving benefits.

The data for active and inactive, non-retired members included date of birth, date of hire, gender, years of service, salary, employee contributions and accumulated interest on employee contributions. The data also included a code to indicate whether the employee had elected to make contributions on salary above \$25,000, and a code indicating the type of employer (comprehensive university, other college or university, or other employer). For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and a form of payment code.

Individual member contributions for the 12 months prior to the valuation date were used to determine the actual salary for plan members in the prior plan year. The valuation assumptions for salary increases were used to determine the projected salary for the current plan year. Additionally, contributing members were assumed to accrue one additional year of service between the end of the prior employment year and the valuation date.

Additional assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

Some inactive, nonvested employees who are entitled to a refund are not included in the data, but a liability for their refund is included instead in the Suspense Fund, which is included in the liability.





# TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA



## Statistical Section

## **Statistical Section Summary**

The Statistical Section presents several schedules that provide financial trends analysis of the Teachers' Retirement System of Oklahoma's overall financial health and additional analytical information on membership data and retirement benefits. The schedules presented are for the combined Plans unless noted as an individual Plan. The schedules beginning on page 114 through page 123 provide data depicting active membership, level of monthly benefits, years of service, and retirement options. The schedules on page 124 to page 133 provide financial data showing revenues and expenses. On page 134 to page 137 these schedules report the financial impact of retirees in the state of Oklahoma and the participating employers. The source of the information in these schedules is derived from internal information unless otherwise noted.

# Retired Members by Type of Benefit

Fiscal Year Ended June 30, 2018

Amount of Monthly Benefit	Number of Retired Members	Type of Retirement *						Option Selected #					
		1	2	3	4	5	6	A	B	C	D	E	G
Under \$500	7,544	4,271	2,512	343	93	324	1	3,621	1,580	1,734	336	272	1
\$501-\$1,000	10,301	6,821	1,942	734	92	712	0	4,600	2,047	2,546	849	259	0
\$1,001-\$1,500	9,201	7,576	424	679	13	510	0	3,469	1,792	2,787	967	187	0
\$1,501-\$2,000	13,967	12,975	91	634	0	268	0	4,535	3,200	4,507	1,427	298	0
\$2,001-\$2,500	12,271	11,701	21	504	0	45	0	3,788	2,613	4,196	1,368	305	0
\$2,501-\$3,000	5,247	5,007	7	220	1	12	0	1,729	930	1,826	666	96	0
\$3,001-\$3,500	2,426	2,354	2	70	0	0	0	840	383	884	269	51	0
\$3,501-\$4,000	1,145	1,119	3	23	0	0	0	429	150	428	120	18	0
Over \$4,000	1,694	1,650	2	42	0	0	0	570	170	694	223	38	0
<b>Totals</b>		<b>53,474</b>	<b>5,004</b>	<b>3,248</b>	<b>199</b>	<b>1,870</b>	<b>1</b>	<b>23,580</b>	<b>12,865</b>	<b>19,602</b>	<b>6,224</b>	<b>1,523</b>	<b>1</b>

## \* Type of Retirement

Type 1 - Normal retirement for age and service

Type 2 - Early retirement

Type 3 - Beneficiary payment (Normal retirement)

Type 4 - Beneficiary payment (Early retirement)

Type 5 - Disability retirement

Type 6 - Special annuitants

## # Option Selected

Option A – The Maximum Retirement Plan – provides the greatest monthly lifetime benefit.

Option B – Retirement Option 1 – provides for a decreased rate of reduction of a member's account balance.

Option C – Retirement Option 2 – known as the 100% joint survivor annuity – provides for a reduced monthly benefit to the member for life. Upon the death of the

Option D – Retirement Option 3 – known as the 50% joint survivor annuity – provides a similar benefit as Option 2; however, upon the death of the member, the

Option E – Retirement Option 4 – provides a reduced monthly benefit payable to the member for life. In the event of the member's death within 120 months from the

Option G – Special Annuitants – a former teacher, who taught a minimum of ten years in the public schools of Oklahoma prior to July 1, 1943, receives a special annuity.

# Average Benefit Payments

Fiscal Years Ended June 30

Retirement Effective Date	Years of Credited Service							
	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40+
Period 7/1/2008 to 6/30/2009								
Average monthly benefit	\$366	\$610	\$955	\$1,360	\$1,896	\$2,319	\$3,073	\$3,839
Average final average salary	\$35,522	\$34,547	\$36,411	\$38,874	\$44,043	\$49,044	\$55,906	\$65,221
Number of retired members	135	302	324	497	502	465	234	134
Period 7/1/2009 to 6/30/2010								
Average monthly benefit	\$365	\$613	\$952	\$1,365	\$1,895	\$2,319	\$3,074	\$3,850
Average final average salary	\$35,555	\$34,709	\$36,329	\$38,995	\$44,020	\$49,040	\$55,956	\$65,319
Number of retired members	135	299	321	496	499	465	232	133
Period 7/1/2010 to 6/30/2011								
Average monthly benefit	\$353	\$672	\$983	\$1,511	\$1,999	\$2,413	\$3,103	\$3,931
Average final average salary	\$33,632	\$37,158	\$38,819	\$42,813	\$46,536	\$50,704	\$57,770	\$63,268
Number of retired members	195	377	355	586	564	607	366	163
Period 7/1/2011 to 6/30/2012								
Average monthly benefit	\$405	\$680	\$1,096	\$1,551	\$2,013	\$2,515	\$3,104	\$3,926
Average final average salary	\$37,155	\$37,678	\$41,877	\$44,301	\$46,467	\$52,837	\$57,201	\$64,385
Number of retired members	228	383	350	572	551	585	326	188
Period 7/1/2012 to 6/30/2013								
Average monthly benefit	\$392	\$726	\$1,131	\$1,568	\$2,076	\$2,569	\$3,268	\$4,019
Average final average salary	\$36,669	\$39,041	\$43,668	\$44,636	\$47,858	\$53,682	\$59,049	\$64,744
Number of retired members	203	320	342	520	576	538	350	165
Period 7/1/2013 to 6/30/2014								
Average monthly benefit	\$393	\$770	\$1,137	\$1,639	\$2,112	\$2,694	\$3,392	\$4,267
Average final average salary	\$35,420	\$40,470	\$43,459	\$46,149	\$48,545	\$55,667	\$60,993	\$69,444
Number of retired members	235	337	335	498	557	482	335	167
Period 7/1/2014 to 6/30/2015								
Average monthly benefit	\$402	\$720	\$1,173	\$1,611	\$2,172	\$2,650	\$3,427	\$3,972
Average final average salary	\$35,345	\$38,407	\$44,188	\$45,736	\$50,004	\$55,048	\$61,810	\$63,623
Number of retired members	240	419	403	468	644	504	352	170
Period 7/1/2015 to 6/30/2016								
Average monthly benefit	\$438	\$737	\$1,236	\$1,732	\$2,262	\$2,717	\$3,557	\$4,269
Average final average salary	\$37,695	\$38,868	\$46,885	\$49,917	\$52,156	\$56,599	\$64,207	\$68,359
Number of retired members	243	407	413	389	606	433	323	176
Period 7/1/2016 to 6/30/2017								
Average monthly benefit	\$460	\$728	\$1,246	\$1,812	\$2,311	\$2,921	\$3,848	\$4,436
Average final average salary	\$39,534	\$38,873	\$46,355	\$53,036	\$53,222	\$59,814	\$68,650	\$69,285
Number of retired members	292	411	393	471	624	465	290	175
Period 7/1/2017 to 6/30/2018								
Average monthly benefit	\$426	\$745	\$1,249	\$1,737	\$2,331	\$2,902	\$3,660	\$4,278
Average final average salary	\$37,494	\$39,050	\$46,560	\$50,117	\$53,536	\$60,145	\$65,167	\$68,017
Number of retired members	279	449	394	379	522	408	256	165

# Principal Participating Employers

Current Year (2018) and Nine Years Ago (2009)

Participating Employer	Fiscal Year 2018			Fiscal Year 2009		
	Covered Members	Rank	Percentage of Total System	Covered Members	Rank	Percentage of Total System
OKLAHOMA CITY PUBLIC SCHOOLS	4,787	1	5.15%	4,645	1	4.98%
OKLAHOMA STATE UNIVERSITY	3,799	2	4.08%	4,098	2	4.39%
TULSA PUBLIC SCHOOLS	3,769	3	4.05%	4,063	3	4.35%
EDMOND PUBLIC SCHOOLS	2,575	4	2.77%	2,449	5	2.62%
UNIVERSITY OF OKLAHOMA	2,548	5	2.74%	2,723	4	2.92%
MOORE PUBLIC SCHOOLS	2,415	6	2.60%	2,396	6	2.57%
OU HEALTH SCIENCES CENTER	1,892	7	2.03%	2,067	7	2.22%
PUTNAM CITY PUBLIC SCHOOLS	1,875	8	2.02%	1,655	10	1.77%
NORMAN PUBLIC SCHOOLS	1,798	9	1.93%	1,532	12	1.64%
MID-DEL PUBLIC SCHOOLS	1,768	10	1.90%	1,656	9	1.77%
* All Other	65,794		70.73%	66,023		70.76%
<b>Total (598 Employers)</b>	<b>93,020</b>		<b>100.00%</b>	<b>93,307</b>		<b>100.00%</b>

\*In Fiscal Year 2018, "all other" consisted of:

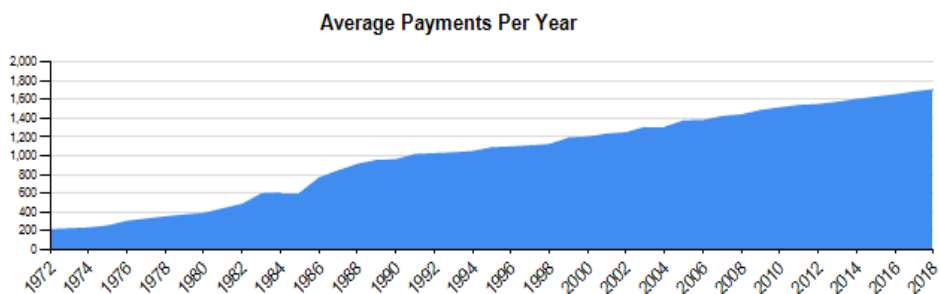
Type	Participating	Members
School Districts	505	49,945
Higher Education	24	9,045
Career Technology	28	4,342
State Agencies	22	1,324
Other	9	1,138
<b>Total</b>	<b>588</b>	<b>65,794</b>

# Schedule of Average Payment Amounts

Fiscal Year Ended June 30, 2018

Date	Regular Annuitants	Special Annuitants	Date	Regular Annuitants	Special Annuitants
June 30, 1948	\$33		June 30, 1993	\$1,030	\$159
June 30, 1954	\$75		June 30, 1994	\$1,044	\$159
June 30, 1960	\$83		June 30, 1995	\$1,084	\$163
June 30, 1970	\$179		June 30, 1996	\$1,093	\$163
June 30, 1972	\$209		June 30, 1997	\$1,105	\$163
June 30, 1973	\$217		June 30, 1998	\$1,119	\$163
June 30, 1974	\$226		June 30, 1999	\$1,187	\$172
June 30, 1975	\$248		June 30, 2000	\$1,199	\$172
June 30, 1976	\$297		June 30, 2001	\$1,231	\$175
June 30, 1977	\$321		June 30, 2002	\$1,246	\$175
June 30, 1978	\$345		June 30, 2003	\$1,304	\$175
June 30, 1979	\$365		June 30, 2004	\$1,304	\$180
June 30, 1980	\$382		June 30, 2005	\$1,373	\$187
June 30, 1981	\$432		June 30, 2006	\$1,376	\$191
June 30, 1982	\$480		June 30, 2007	\$1,419	\$191
June 30, 1983	\$592		June 30, 2008	\$1,437	\$191
June 30, 1984	\$600		June 30, 2009	\$1,483	\$194
June 30, 1985	\$600		June 30, 2010	\$1,511	\$195
June 30, 1986	\$761		June 30, 2011	\$1,537	\$195
June 30, 1987	\$837		June 30, 2012	\$1,547	\$195
June 30, 1988	\$907		June 30, 2013	\$1,571	\$195
June 30, 1989	\$949		June 30, 2014	\$1,601	\$195
June 30, 1990	\$956	\$159	June 30, 2015	\$1,627	\$195
June 30, 1991	\$1,013	\$159	June 30, 2016	\$1,650	\$195
June 30, 1992	\$1,021	\$159	June 30, 2017	\$1,681	\$195
			June 30, 2018	\$1,705	\$195

Note that figures after June 30, 1989, do not include monthly medical premiums.



# Active Personnel

Fiscal Year Ended June 30, 2018

<b>Years of Service</b>	<b>All Active Personnel</b>
Under 5 years	32,948
5-9	16,982
10-14	13,390
15-19	10,519
20-24	7,105
25-29	4,652
30-34	1,836
35-39	864
40-44	196
45-49	34
50-54	5
55-59	2
<b>Totals</b>	<b>88,534</b>

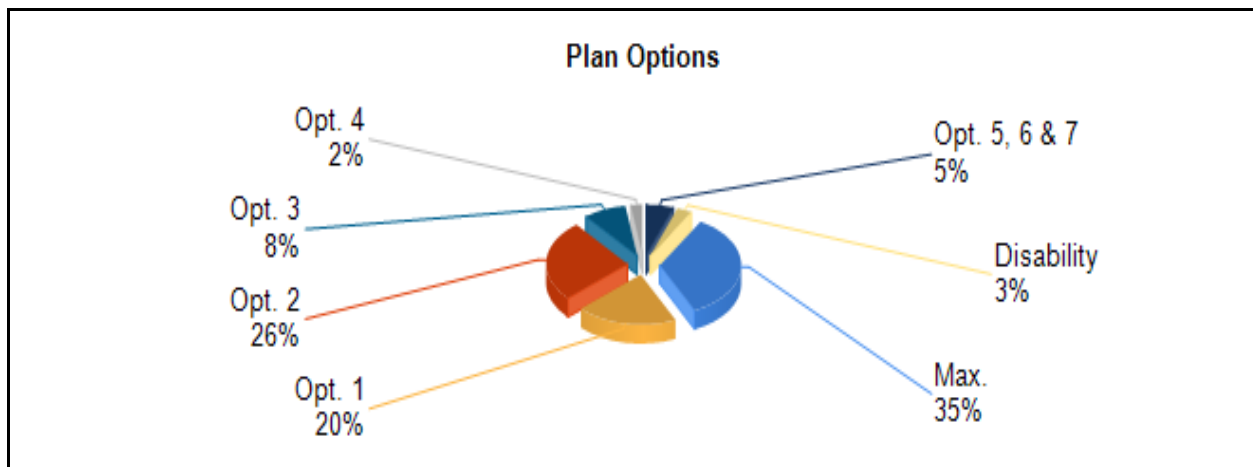
<b>Salary Range</b>	<b>All Active Personnel</b>
Under \$5,000	1,646
\$5,001-\$10,000	2,457
\$10,001-\$15,000	5,725
\$15,001-\$20,000	4,736
\$20,001-\$25,000	3,613
\$25,001-\$30,000	8,000
\$30,001-\$35,000	12,574
\$35,001-\$40,000	12,590
\$40,001-\$45,000	10,209
\$45,001-\$50,000	6,704
\$50,001-\$55,000	4,122
\$55,001-\$60,000	3,029
\$60,001-\$65,000	2,365
\$65,001-\$70,000	1,940
\$70,001-\$75,000	1,609
\$75,001 and Above	7,215
<b>Totals</b>	<b>88,534</b>

Average Age (years)	45.5
Average Salary	\$41,522
Average Service (years)	10.1

# Schedule of Retired Members by Type of Benefit

Selected Plan Options  
Fiscal Year Ended June 30, 2018

Option	Retired Members			Average Monthly Payment	% of Total
	Male	Female	Total		
Maximum	4,026	18,056	22,082	\$1,616	35%
Option 1	2,779	10,086	12,865	\$1,626	20%
Option 2	8,358	8,301	16,658	\$1,910	26%
Option 3	2,024	3,369	5,393	\$2,039	8%
Option 4	419	1,063	1,481	\$1,567	2%
Options 5, 6 & 7	976	2,471	3,447	\$1,433	5%
Disability	485	1,385	1,870	\$995	3%
<b>Totals</b>	<b>19,066</b>	<b>44,730</b>	<b>63,796</b>	<b>\$1,701</b>	<b>100%</b>



Maximum – provides for the greatest possible benefit.

Option 1 – provides for a decreased rate of reduction of member's account balance.

Option 2 – provides for a reduced monthly benefit to the member for life. Upon death of the member, the designated beneficiary continue to receive the same monthly benefit for life.

Option 3 – provides a similar benefit as Option 2; however, upon death of the member, the monthly benefit to the designated beneficiary is one-half of the benefit of the member.

Option 4 – provides a reduced monthly benefit. In the event of the member's death within 120 months from the date of retirement, the balance of the payments are continued to the beneficiary designated at the time of retirement.

Options 5, 6 & 7 – represents beneficiaries of options 2, 3 & 4.

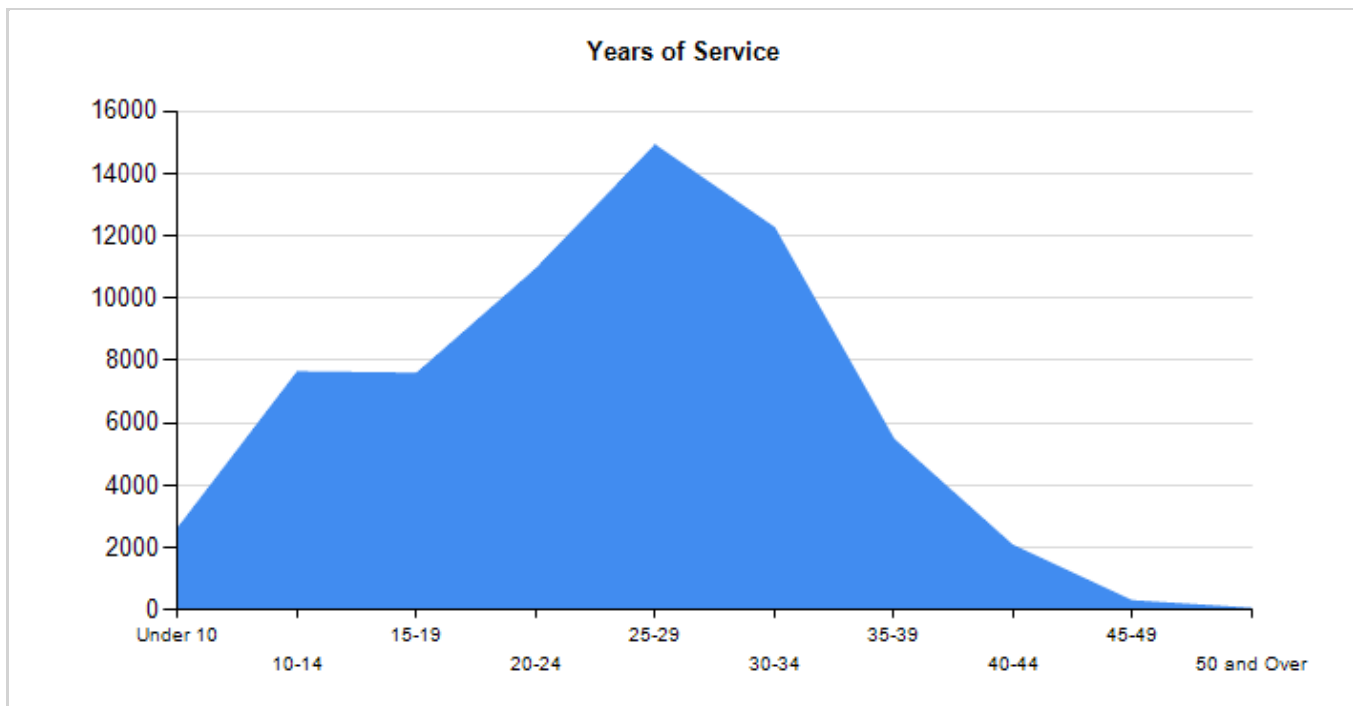
Disability – upon meeting requirements, a vested member may receive a monthly benefit.



# Distribution by Years of Service

Fiscal Year Ended June 30, 2018

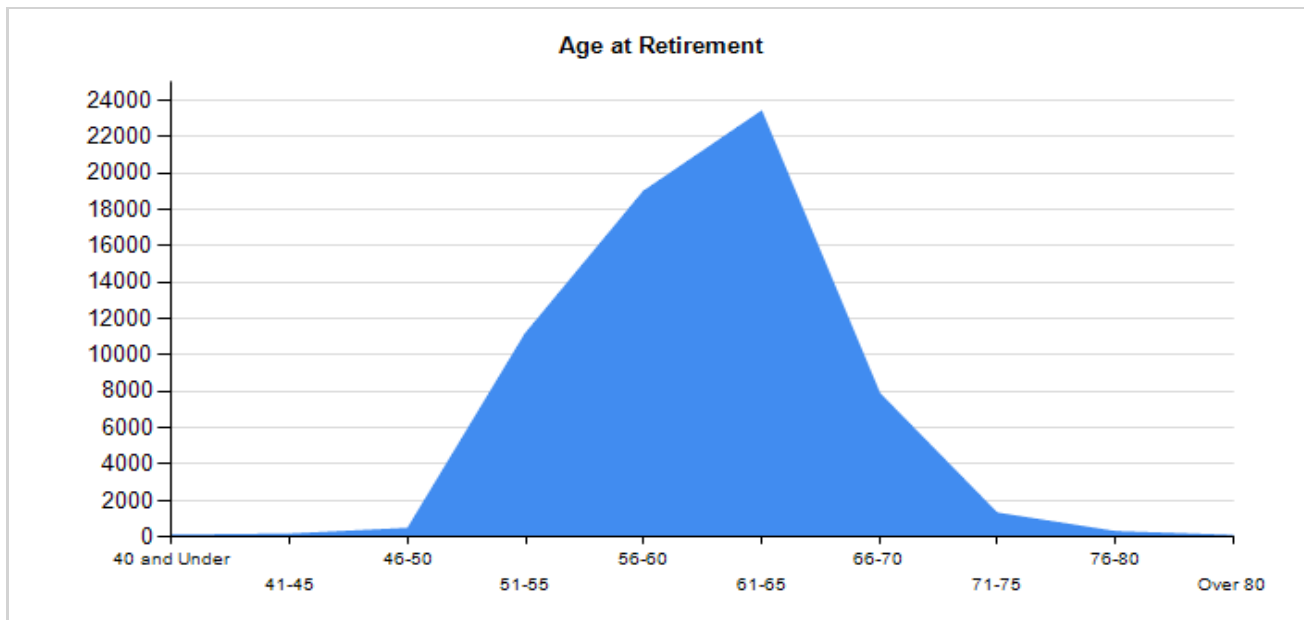
Years of Creditable Service	Retired Members			Average Monthly Payment
	Male	Female	Total	
Under 10	928	1,698	2,626	\$394
10-14	2,064	5,562	7,626	\$577
15-19	1,998	5,582	7,580	\$934
20-24	2,455	8,480	10,935	\$1,391
25-29	4,225	10,682	14,907	\$1,882
30-34	4,242	8,014	12,256	\$2,290
35-39	2,127	3,353	5,480	\$2,925
40-44	873	1,193	2,065	\$3,541
45-49	131	149	280	\$4,156
50 and Over	23	19	42	\$4,237
<b>Totals</b>	<b>19,066</b>	<b>44,730</b>	<b>63,796</b>	<b>\$1,701</b>



# Distribution by Age at Retirement

Fiscal Year Ended June 30, 2018

Age at Retirement	Retired Members			Average Monthly Payment	Average Length of Service (Years)
	Male	Female	Total		
40 and Under	20	63	83	\$724	13.0
41-45	37	110	147	\$986	15.9
46-50	129	330	459	\$1,240	20.1
51-55	4,126	7,055	11,181	\$1,980	28.5
56-60	5,177	13,804	18,981	\$1,690	25.5
61-65	6,417	16,965	23,382	\$1,583	23.1
66-70	2,521	5,380	7,901	\$1,736	23.0
71-75	492	809	1,300	\$1,738	23.4
76-80	113	172	285	\$1,551	23.4
Over 80	34	42	76	\$1,253	21.0
<b>Totals</b>	<b>19,066</b>	<b>44,730</b>	<b>63,796</b>	<b>\$1,701</b>	<b>24.7</b>

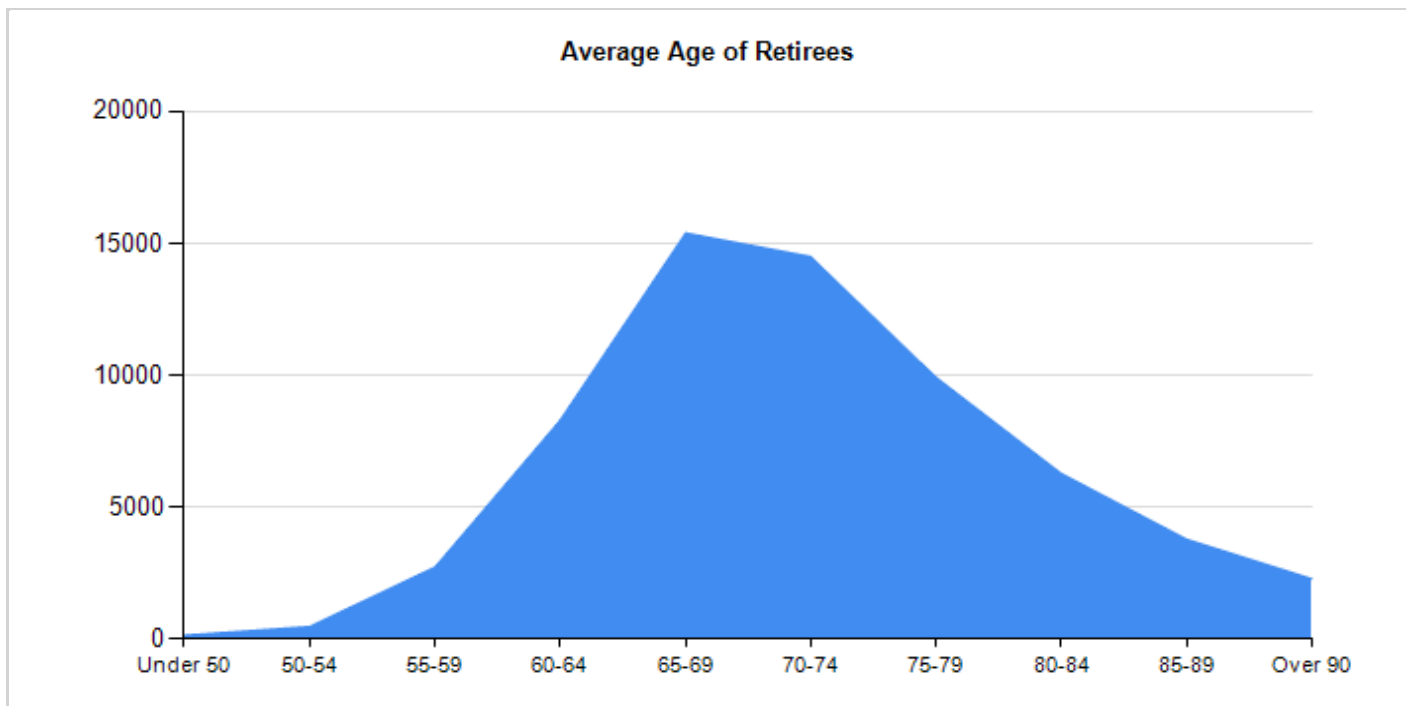


# Distribution by Retiree Age

Fiscal Year Ended June 30, 2018

Age	Total Retired Members	Average Length of Service	Average Monthly Payment
Under 50	149	17.9	\$1,202
50-54	477	25.7	\$2,018
55-59	2,732	27.0	\$2,097
60-64	8,303	25.5	\$1,957
65-69	15,386	24.7	\$1,843
70-74	14,490	24.7	\$1,740
75-79	9,918	24.2	\$1,550
80-84	6,276	23.8	\$1,390
85-89	3,782	24.2	\$1,303
Over 90	2,283	25.4	\$1,227
<b>Totals</b>	<b>63,796</b>	<b>24.7</b>	<b>\$1,701</b>

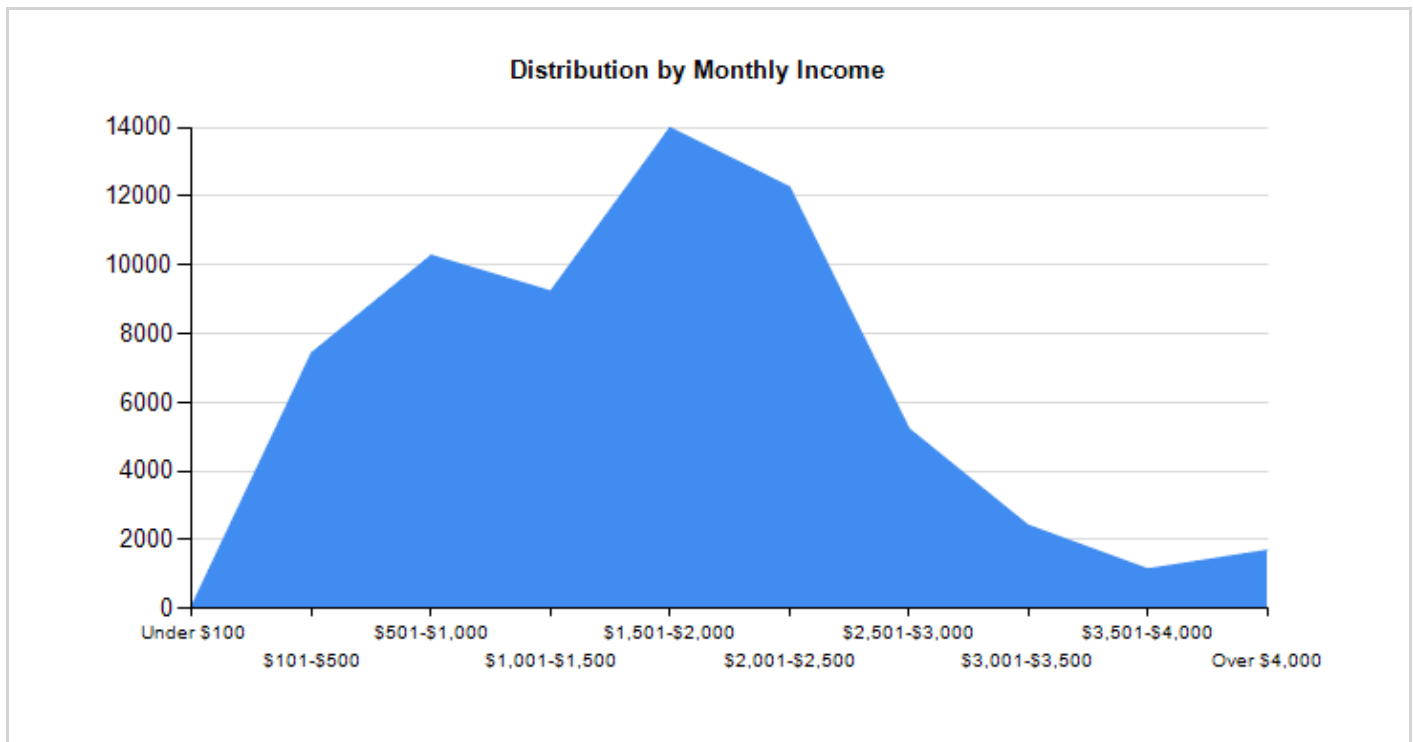
Average age of retired members is 71.5 years.



# Distribution by Monthly Income

Fiscal Year Ended June 30, 2018

Monthly Income	Retired Members	Total	Average Payment
Under \$100	99	\$8,330	\$84
\$101-\$500	7,441	\$2,441,982	\$328
\$501-\$1,000	10,278	\$7,558,158	\$735
\$1,001-\$1,500	9,233	\$11,678,247	\$1,264
\$1,501-\$2,000	13,993	\$24,660,031	\$1,762
\$2,001-\$2,500	12,267	\$27,229,665	\$2,219
\$2,501-\$3,000	5,235	\$14,210,255	\$2,713
\$3,001-\$3,500	2,419	\$7,786,331	\$3,217
\$3,501-\$4,000	1,144	\$4,259,569	\$3,723
Over \$4,000	1,687	\$8,722,398	\$5,167
<b>Totals</b>	<b>63,796</b>	<b>\$108,554,967</b>	<b>\$1,701</b>



**Schedule of Changes in Net Position 401(a) Plan  
For Periods Ended June 30,**

<u>Year</u>	<u>Additions</u>				<u>Deductions</u>			<u>Total Changes in Net Position</u>
	<u>Contributions</u>		<u>State and</u>	<u>Net Investment</u>	<u>Benefit</u>	<u>Refunds and</u>	<u>Administrative</u>	
	<u>Member</u>	<u>Employer</u>	<u>Federal Matching</u>	<u>Income</u>	<u>Payments</u>	<u>Annuity Payments</u>	<u>Expenses</u>	
2010 *	\$ 290,247,028	\$ 366,282,238	\$ 254,375,139	\$ 1,162,479,318	\$ 912,912,714	\$ 30,409,340	\$ 4,979,589	\$ 1,125,082,080
2011 *	286,643,244	364,025,589	274,451,205	1,898,444,287	979,245,846	35,211,171	4,716,480	1,804,390,828
2012 *	291,385,506	376,635,234	304,995,663	137,844,165	1,036,132,586	32,076,398	4,273,189	38,378,395
2013 *	290,044,395	373,789,020	327,505,309	1,777,593,224	1,095,144,055	28,894,193	4,156,867	1,640,736,833
2014 *	301,300,811	386,895,127	320,157,548	2,571,707,952	1,153,051,607	28,718,256	4,282,605	2,394,008,970
2015 *	303,677,304	392,051,458	336,390,612	428,855,747	1,201,350,906	35,240,176	4,358,938	220,025,101
2016 *	294,459,091	409,753,221	315,671,996	(357,443,248)	1,257,276,705	36,109,832	4,458,338	(635,403,815)
2017 *	292,949,337	396,743,812	301,951,901	1,945,898,975	1,281,816,606	40,944,298	4,028,080	1,610,755,041
2018 *	312,866,576	413,068,467	344,610,101	1,455,605,848	1,323,912,271	42,940,983	4,200,021	1,155,097,717

\* - Net investment income includes both securities lending income and realized and unrealized gains and losses on investments.

Information to present a 10-year history is not readily available.

**Schedule of Changes in Net Position 403(b)  
Plan For Periods Ended June 30,**

						Total Changes in Net Position
		Additions		Deductions		
Year		<u>Contributions</u>	Net Investment	Refunds and		
	<u>Member</u>		<u>Income</u>	<u>Annuity Payments</u>		
2010	*	\$ 5,402,646	\$ 28,788,108	\$ 44,542,103		\$ (10,351,349)
2011	*	5,010,856	27,192,952	23,709,394		8,494,414
2012	*	3,448,031	5,811,083	22,661,333		(13,402,219)
2013	*	2,910,706	15,012,065	23,838,151		(5,915,380)
2014	*	3,026,532	24,174,857	21,343,243		5,858,146
2015	*	2,823,513	3,607,327	21,822,979		(15,392,139)
2016	*	2,222,812	2,836,367	19,731,438		(14,672,259)
2017	*	2,548,206	11,750,940	19,762,817		(5,463,671)
2018	*	1,723,454	7,941,562	17,555,113		(7,890,097)

\* - Net investment income includes both securities lending income and realized and unrealized gains and losses on investments.

Information to present a 10-year history is not readily available.

**Schedule of Changes in Net Position Other Postemployment Benefit Plan  
For Period Ended June 30,**

<u>Year</u>	<u>Additions</u>		<u>Deductions</u>		<u>Total Changes in Net Position</u>
	<u>Contributions Employer</u>	<u>Net Investment Income</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	
2017 *	\$ 6,513,158	\$ 62,298,027	\$ 30,309,127	\$ 26,457	\$ 38,475,601
2018 *	2,912,563	44,760,425	36,963,620	11,427	10,697,941

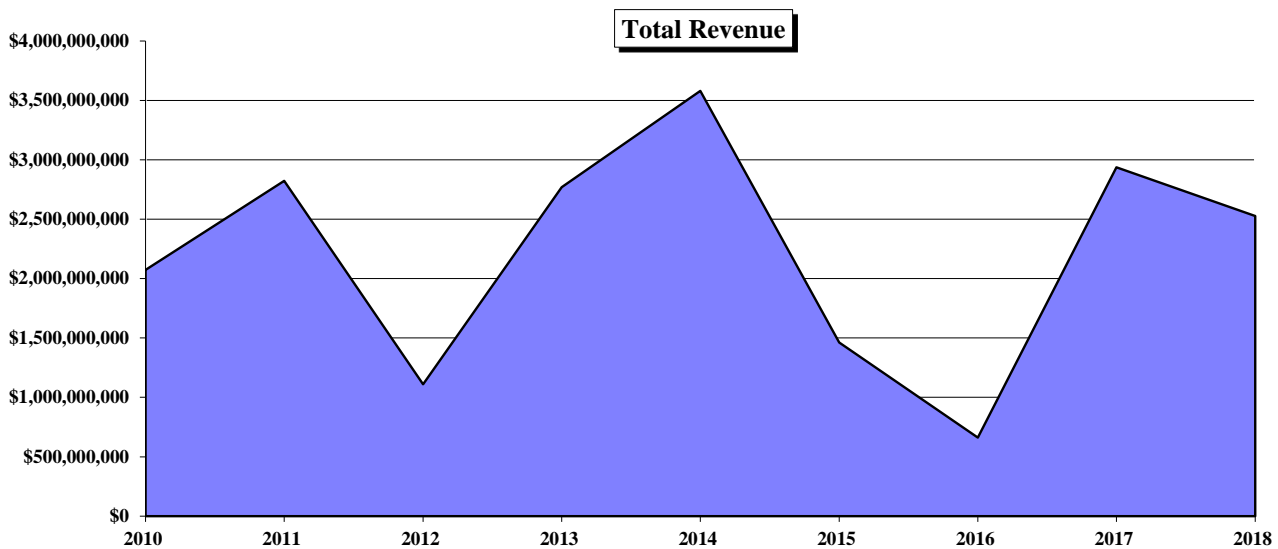
\* - Net investment income includes both securities lending income and realized and unrealized gains and losses on investments.

Information to present a 10-year history is not readily available

**Schedule of Revenue by Source 401(a) Plan  
For Periods Ended June 30,**

<u>Year</u>	<u>Member Contributions</u>	<u>Employer Contributions</u>	State of Oklahoma and Various <u>Grant Sources</u>	Net Investment <u>Income</u>	<u>Other Revenue</u>	<u>Total</u>
2010 *	\$ 290,247,028	\$ 366,282,238	\$ 254,375,139	\$1,157,446,907	\$ 5,032,411	\$ 2,073,383,723
2011 *	286,643,244	364,025,589	274,451,205	1,892,108,268	6,336,019	2,823,564,325
2012 *	291,385,506	376,635,234	304,995,663	128,564,937	9,279,228	1,110,860,568
2013 *	290,044,395	373,789,020	327,505,309	1,768,061,837	9,531,387	2,768,931,948
2014 *	301,300,811	386,895,127	320,157,548	2,563,117,816	8,590,136	3,580,061,438
2015 *	303,677,304	392,051,458	336,390,612	417,023,224	11,832,523	1,460,975,121
2016 *	294,459,091	409,753,221	315,671,996	(365,314,005)	7,870,757	662,441,060
2017 *	292,949,337	396,743,812	301,951,901	1,937,463,392	8,435,583	2,937,544,025
2018 *	312,866,576	413,068,467	344,610,101	1,448,090,255	7,515,593	2,526,150,992

\* - Investment income includes both realized and unrealized gains and losses on investments.



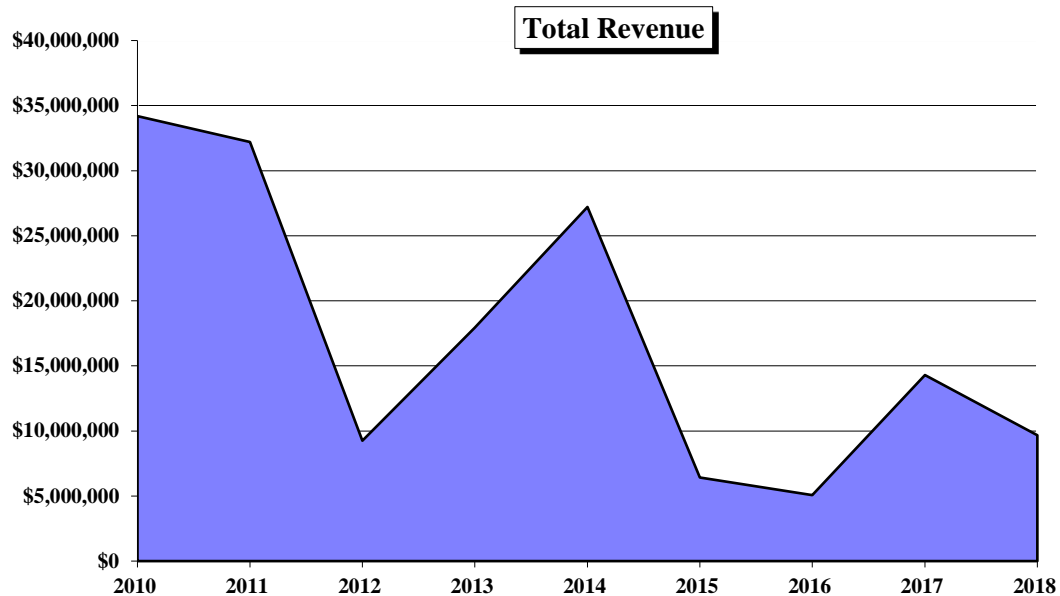
Information to present a 10-year history is not readily available.



**Schedule of Revenue by Source 403(b) Plan  
For Periods Ended June 30,**

<u>Year</u>		<u>Member</u>		<u>Net</u>		<u>Total</u>
		<u>Contributions</u>		<u>Investment</u>		
				<u>Income</u>		
2010	*	\$ 5,402,646	\$	28,788,108	\$	34,190,754
2011	*	5,010,856		27,192,952		32,203,808
2012	*	3,448,031		5,811,083		9,259,114
2013	*	2,910,706		15,021,065		17,931,771
2014	*	3,026,532		24,174,857		27,201,389
2015	*	2,823,513		3,607,327		6,430,840
2016	*	2,222,812		2,836,367		5,059,179
2017	*	2,548,206		11,750,940		14,299,146
2018	*	1,723,454		7,941,562		9,665,016

\* - Investment income includes both realized and unrealized gains and losses on investments.



Information to present a 10-year history is not readily available.

**Schedule of Revenue by Source Other Postemployment Benefit Plan  
For Period Ended June 30,**

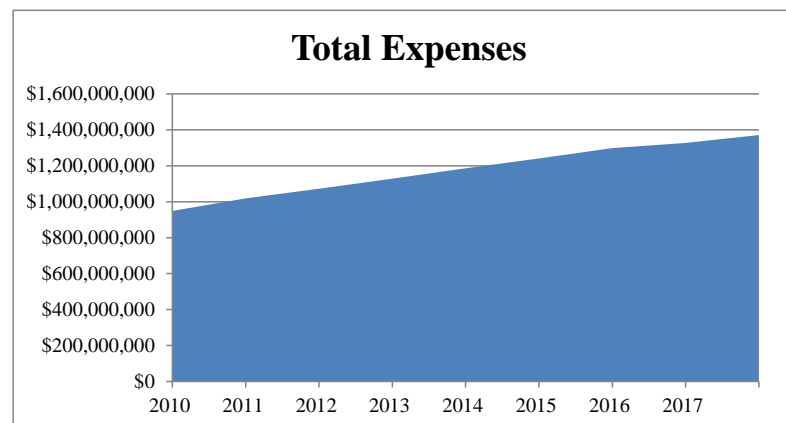
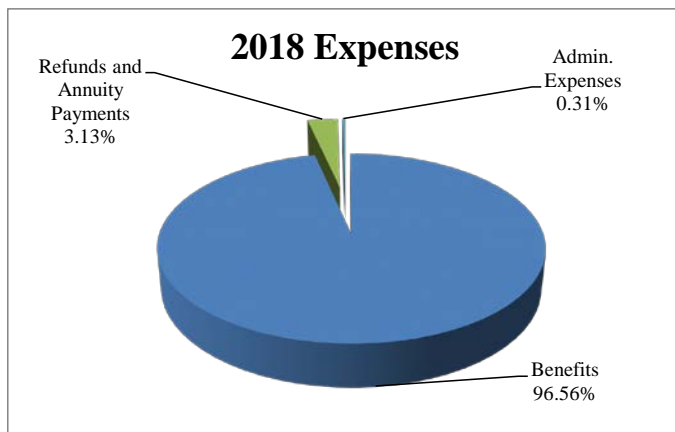
<u>Year</u>		<u>Employer Contributions</u>	<u>Net Investment Income</u>		<u>Total</u>
2017	*	\$ 6,513,158	\$ 62,298,027	\$	68,811,185
2018	*	2,912,563	44,760,425		47,672,988

\* - Investment income includes both realized and unrealized gains and losses on investments.

Information to present a 10-year history is not readily available.

**Schedule of Expenses by Type 401(a) Plan  
For Periods Ended June 30,**

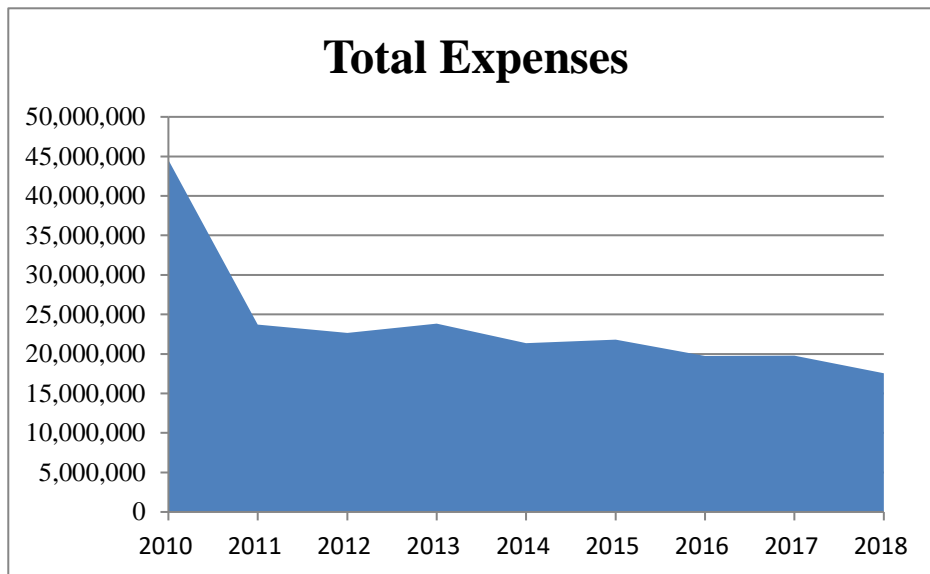
<u>Year</u>	<u>Benefits</u>	<u>Refunds and Annuity Payments</u>	<u>Administrative Expenses</u>	<u>Total</u>
2010	\$ 912,912,714	\$ 30,409,340	\$ 4,979,589	\$ 948,301,644
2011	979,245,846	35,211,171	4,716,480	1,019,173,497
2012	1,036,132,586	32,076,398	4,273,189	1,072,482,173
2013	1,095,144,055	28,894,193	4,156,867	1,128,195,115
2014	1,153,051,607	28,718,256	4,282,605	1,186,052,468
2015	1,201,350,907	35,240,176	4,358,938	1,240,950,021
2016	1,257,276,705	36,109,832	4,458,338	1,297,844,875
2017	1,281,816,606	40,944,298	4,028,080	1,326,788,984
2018	1,323,912,271	42,940,983	4,200,021	1,371,053,275



Information to present a 10-year history is not readily available.

**Schedule of Expenses by Type 403(b) Plan  
For Periods Ended June 30,**

<u>Year</u>	<u>Refunds and Annuity Payments</u>
2010	\$ 44,542,103
2011	23,709,394
2012	22,661,333
2013	23,838,151
2014	21,343,243
2015	21,822,979
2016	19,731,438
2017	19,762,817
2018	17,555,113



Information to present a 10-year history is not readily available.

**Schedule of Expenses by Type Other Postemployment Benefit Plan  
For Period Ended June 30,**

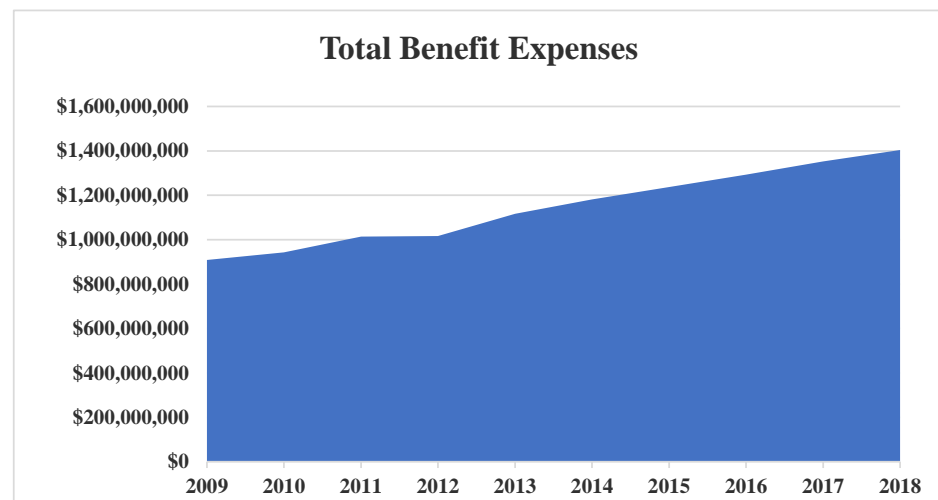
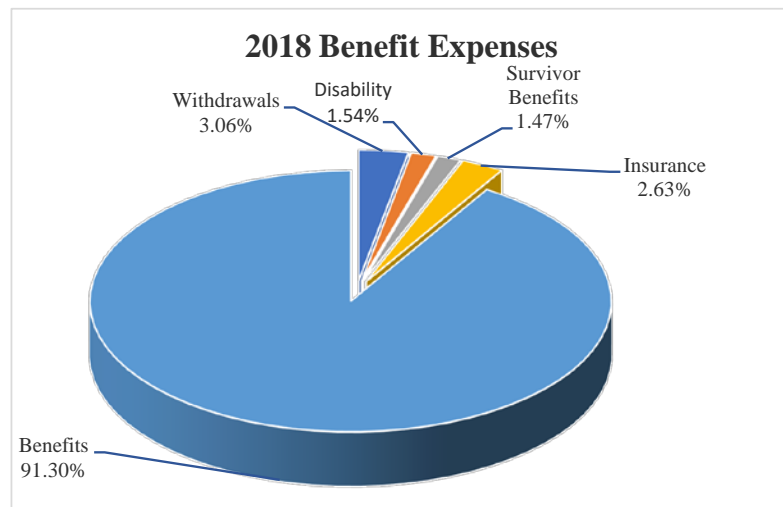
<u>Year</u>	<u>Benefits</u>	<u>Administrative Expenses</u>	<u>Total</u>
2017	\$ 30,309,127	\$ 26,457	\$ 30,335,584
2018	36,963,620	11,427	36,975,047

Information to present a 10-year history is not readily available.

# Schedule of Benefit Expenses by Type

For Periods Ended June 30,

Year	Age And Service Benefits	Disability Benefits	Insurance Payments	Survivor Benefits	Withdrawal of Accounts	Total
2009	\$818,781,566	\$16,441,272	\$30,523,203	\$10,527,153	\$32,130,596	\$908,403,790
2010	\$854,573,317	\$16,803,072	\$29,916,471	\$11,619,585	\$30,409,340	\$943,321,785
2011	\$921,893,090	\$17,742,173	\$29,405,228	\$10,205,355	\$35,211,171	\$1,014,457,017
2012	\$923,869,182	\$18,055,036	\$29,607,919	\$12,339,834	\$32,076,398	\$1,015,948,369
2013	\$1,016,274,986	\$18,713,611	\$31,809,399	\$17,393,994	\$32,295,274	\$1,116,487,264
2014	\$1,088,077,119	\$19,310,123	\$30,135,639	\$15,527,726	\$28,718,256	\$1,181,768,863
2015	\$1,136,433,283	\$20,093,601	\$30,362,551	\$14,461,472	\$35,240,176	\$1,236,591,083
2016	\$1,189,645,360	\$20,731,886	\$30,522,251	\$16,377,208	\$36,109,832	\$1,293,386,537
2017	\$1,242,088,802	\$21,238,923	\$30,309,127	\$18,488,881	\$40,944,298	\$1,353,070,031
2018	\$1,281,644,941	\$21,617,912	\$36,963,620	\$20,649,418	\$42,940,983	\$1,403,816,874



# Retirees in the State of Oklahoma by County

Of the 63,796 pensioners and beneficiaries in the Teachers' Retirement System of Oklahoma, 89% or 56,312 remain state of Oklahoma residents. As such, benefit payments of approximately \$1,175,452,302 this year alone went into the State's communities and businesses. Since money changes hands several times, the System's payments have a dramatic effect on the State's economy.

County	Recipients	Annual Payment
Adair	410	\$8,429,778
Alfalfa	116	\$2,379,609
Atoka	240	\$4,631,212
Beaver	88	\$1,692,156
Beckham	341	\$6,824,185
Blaine	195	\$3,875,315
Bryan	854	\$18,086,604
Caddo	601	\$11,769,802
Canadian	1,638	\$34,474,848
Carter	723	\$13,694,697
Cherokee	1,082	\$22,855,340
Choctaw	246	\$5,257,363
Cimarron	44	\$741,012
Cleveland	3,785	\$85,109,762
Coal	91	\$1,956,391
Comanche	1,685	\$35,326,622
Cotton	103	\$1,932,201
Craig	216	\$3,841,782
Creek	839	\$16,588,517
Custer	598	\$12,922,622
Delaware	487	\$10,080,437
Dewey	138	\$2,798,135
Ellis	60	\$1,165,107
Garfield	836	\$18,128,018
Garvin	444	\$9,053,926
Grady	703	\$14,587,848
Grant	78	\$1,564,536
Greer	106	\$2,087,584
Harmon	80	\$1,442,068
Harper	85	\$1,706,180
Haskell	259	\$5,084,602
Hughes	203	\$3,847,917
Jackson	437	\$10,073,846
Jefferson	89	\$2,024,193
Johnston	260	\$5,343,782
Kay	670	\$13,037,788
Kingfisher	252	\$5,307,312
Kiowa	190	\$4,015,377
Latimer	228	\$4,484,166

County	Recipients	Annual Payment
Leflore	792	\$16,079,689
Lincoln	484	\$9,147,135
Logan	530	\$9,316,316
Love	102	\$1,878,058
Major	144	\$2,845,391
Marshall	292	\$5,882,044
Mayes	641	\$13,657,174
Mcclain	682	\$13,068,828
Mccurtain	620	\$11,787,196
Mcintosh	439	\$8,551,367
Murray	220	\$4,722,677
Muskogee	1,301	\$27,676,292
Noble	174	\$3,269,625
Nowata	115	\$2,065,911
Okfuskee	195	\$3,679,073
Oklahoma	10,288	\$218,054,674
Oklmulgee	797	\$15,787,043
Osage	215	\$3,968,681
Ottawa	704	\$12,682,340
Pawnee	229	\$4,424,723
Payne	2,254	\$49,164,414
Pittsburg	709	\$14,043,712
Pontotoc	878	\$18,362,153
Pottawatomie	954	\$20,631,282
Pushmataha	204	\$4,046,635
Roger Mills	81	\$1,509,744
Rogers	1,026	\$21,379,934
Seminole	414	\$8,363,432
Sequoyah	699	\$14,356,595
Stephens	663	\$13,550,089
Texas	241	\$4,871,967
Tillman	142	\$3,059,800
Tulsa	7,752	\$169,313,374
Wagoner	476	\$9,823,384
Washington	650	\$12,016,614
Washita	208	\$3,972,043
Woods	234	\$4,755,111
Woodward	263	\$5,465,142
<b>Total</b>	<b>56,312</b>	<b>\$1,175,452,303</b>

# 2018 Participating Employers

Statistical Section

## Public School Districts

ACHILLE	BUFFALO VALLEY	DALE	GRAHAM-DUSTIN
ADA	BURLINGTON	DARLINGTON	GRAND VIEW
ADAIR	BURNS FLAT-DILL CITY	DAVENPORT	GRANDFIELD
AFTON	BUTNER	DAVIDSON	GRANDVIEW
AGRA	BYNG	DAVIS	GRANITE
ALBION	CACHE	DEER CREEK	GREASY
ALEX	CADDO	DEER CREEK-LAMONT	GREENVILLE
ALINE CLEO	CALERA	DENISON	GROVE
ALLEN	CALUMET	DEPEW	GROVE
ALLEN-BOWDEN	CALVIN	DEWAR	GUTHRIE
ALTUS	CAMERON	DEWEY	GUYMON
ALVA	CANADIAN	DIBBLE	GYPSY
AMBER-POCASSET	CANEY	DICKSON	HAILEYVILLE
ANADARKO	CANEY VALLEY	DOVER	HAMMON
ANDERSON	CANTON	DRUMMOND	HANNA
ANTLERS	CANUTE	DRUMRIGHT	HARDESTY
ARAPAHO-BUTLER	CARNEGIE	DUKE	HARMONY
ARDMORE	CARNEY	DUNCAN	HARRAH
ARKOMA	CASHION	DURANT	HARTSHORNE
ARNETT	CATOOSA	EAGLETOWN	HASKELL
ASHER	CAVE SPRINGS	EARLSBORO	HAWORTH
ATOKA	CEMENT	EDMOND	HAYWOOD
AVANT	CENTRAL	EL RENO	HEALDTON
BALKO	CENTRAL HIGH	ELGIN	HEAVENER
BANNER	CHANDLER	ELK CITY	HENNESSEY
BARNSDALL	CHATTANOOGA	ELMORE CITY	HENRYETTA
BARTLESVILLE	CHECOTAH	EMPIRE	HILLDALE
BATTIEST	CHELSEA	ENID	HINTON
BEARDEN	CHEROKEE	ERICK	HOBART
BEAVER	CHEYENNE	EUFAULA	HODGEN
BEGGS	CHICKASHA	FAIRLAND	HOLDENVILLE
BELFONTE	CHISHOLM	FAIRVIEW	HOLLIS
BENNINGTON	CHOCTAW/NICOMA PARK	FANSHAWE	HOLLY CREEK
BERRYHILL	CHOUTEAU-MAZIE	FARGO	HOMINY
BETHANY	CIMARRON	FELT	HOOKER
BETHEL	CLAREMORE	FLETCHER	HOWE
BIG PASTURE	CLAYTON	FLOWER MOUND	HUGO
BILLINGS	CLEORA	FOREST GROVE	HULBERT
BINGER-ONEY	CLEVELAND	FORGAN	HYDRO-EAKLY
BISHOP	CLINTON	FORT COBB-BROXTON	IDABEL
BIXBY	COALGATE	FORT GIBSON	INDIAHOMA
BLACKWELL	COLBERT	FORT SUPPLY	INDIANOLA
BLAIR	COLCORD	FORT TOWSON	INOLA
BLANCHARD	COLEMAN	FOX	JAY
BLUEJACKET	COLLINSVILLE	FOYIL	JENKS
BOISE CITY	COMANCHE	FREDERICK	JENNINGS
BOKOSHE	COMMERCE	FREEDOM	JONES
BOONE-APACHE	COPAN	FRIEND	JUSTICE
BOSWELL	CORDELL	FRINK-CHAMBERS	JUSTUS-TIAWAH
BOWLEGS	COTTONWOOD	FRONTIER	KANSAS
BOWRING	COVINGTON-DOUGLAS	GANS	KELLYVILLE
BRAGGS	COWETA	GARBER	KENWOOD
BRAY-DOYLE	COYLE	GEARY	KEOTA
BRIDGE CREEK	CRESCENT	GERONIMO	KETCHUM
BRIGGS	CROOKED OAK	GLENCOE	KEYES
BRISTOW	CROWDER	GLENPOOL	KEYS
BROKEN ARROW	CRUTCHO	GLOVER	KEYSTONE
BROKEN BOW	CUSHING	GOODWELL	KIEFER
BRUSHY	CYRIL	GORE	KILDARE
BUFFALO	DAHLONEGAH	GRACEMONT	KINGFISHER



# 2018 Participating Employers

Statistical Section

## Public School Districts (continued)

KINGSTON	MORRISON	POND CREEK - HUNTER	STILLWATER
KINTA	MOSELEY	PORTER CONSOLIDATED	STILWELL
KIOWA	MOSS	PORUM	STONEWALL
KONAWA	MOUNDS	POTEAU	STRAIGHT
KREBS	MOUNTAIN VIEW-GOTEBE	PRAGUE	STRATFORD
KREMLIN-HILLSDALE	MOYERS	PRESTON	STRINGTOWN
LANE	MULDROW	PRETTY WATER	STROTHER
LATTA	MULHALL-ORLANDO	PRUE	STROUD
LAVERNE	MUSKOGEE	PRYOR	STUART
LAWTON	MUSTANG	PURCELL	SULPHUR
LEACH	NASHOBA	PUTNAM CITY	SWEETWATER
LEEDEY	NAVAJO	QUAPAW	SWINK
LEFLORE	NEW LIMA	QUINTON	TAHLEQUAH
LEXINGTON	NEWCASTLE	RATTAN	TALIHINA
LIBERTY	NEWKIRK	RAVIA	TALOGA
LIBERTY	NINNEKAH	RED OAK	TANNEHILL
LINDSAY	NOBLE	REYDON	TECUMSEH
LITTLE AXE	NORMAN	RINGLING	TEMPLE
LOCUST GROVE	NORTH ROCK CREEK	RINGWOOD	TENKILLER
LOMEGA	NORWOOD	RIPLEY	TERRAL
LONE GROVE	NOWATA	RIVERSIDE	TEXHOMA
LONE STAR	OAK GROVE	ROBIN HILL	THACKERVILLE
LONE WOLF	OAKDALE	ROCK CREEK	THOMAS-FAY-CUSTER UNIFIED
LOOKEBA-SICKLES	OAKS MISSION	ROCKY MOUNTAIN	TIMBERLAKE INDEPENDENT
LOWREY	OILTON	ROFF	TIPTON
LUKFATA	OKARCHE	ROLAND	TISHOMINGO
LUTHER	OKAY	RUSH SPRINGS	TONKAWA
MACOMB	OKEENE	RYAL	TULSA
MADILL	OKEMAH	RYAN	TUPELO
MANGUM	OKLAHOMA CITY	SALINA	TURKEY FORD
MANNFORD	OKLAHOMA UNION	SALLISAW	TURNER
MANNSVILLE	OKMULGEE	SAND SPRINGS	TURPIN
MAPLE	OKTAHA	SAPULPA	TUSHKA
MARBLE CITY	OLIVE	SASAKWA	TUSKAHOMA
MARIETTA	OLUSTEE-ELDORADO DISTRICT	SAVANNA	TUTTLE
MARLOW	OOLOGAH TALALA	SAYRE	TWIN HILLS
MARYETTA	OPTIMA	SCHULTER	TYRONE
MASON	OSAGE	SEILING	UNION
MAUD	OSAGE HILLS	SEMINOLE	UNION CITY
MAYSVILLE	OWASSO	SENTINEL	VALLIANT
MCALESTER	PADEN	SEQUOYAH	VANOSS
MCCORD	PANAMA	SHADY GROVE	VARNUM
MCCURTAIN	PANOLA	SHADY POINT	VELMA ALMA
MCCLOUD	PAOLI	SHARON MUTUAL	VERDEN
MEDFORD	PAULS VALLEY	SHATTUCK	VERDIGRIS
MEEKER	PAWHUSKA	SHAWNEE	VIAN
MERRITT	PAWNEE	SHIDLER	VICI
MIAMI	PEAVINE	SILO	VINITA
MID-DEL	PECKHAM	SKIATOOK	WAGONER
MIDDLEBERG	PEGGS	SMITHVILLE	WAINWRIGHT
MIDWAY	PERKINS TRYON	SNYDER	WALTERS
MILBURN	PERRY	SOPER	WANETTE
MILL CREEK	PIEDMONT	SOUTH COFFEYVILLE	WAPANUCKA
MILLWOOD	PIONEER	SOUTH ROCK CREEK	WARNER
MINCO	PIONEER-PLEASANT VALE	SPERRY	WASHINGTON
MOFFETT	PITTSBURG	SPIRO	WATONGA
MONROE	PLAINVIEW	SPRINGER	WATTS
MOORE	PLEASANT GROVE	STERLING	WAUKOMIS
MOORELAND	POCOLA	STIDHAM	WAURIKA
MORRIS	PONCA CITY	STIGLER	WAYNE

# 2018 Participating Employers

Statistical Section

## Public School Districts (continued)

WAYNOKA	WETUMKA	WILBURTON	WYANDOTTE
WEATHERFORD	WEWOKA	WILSON	WYNNEWOOD
WEBBERS FALLS	WHITE OAK	WILSON	WYNONA
WELCH	WHITE ROCK	WISTER	YALE
WELEETKA	WHITEBEAD	WOODALL	YARBROUGH
WELLSTON	WHITEFIELD	WOODLAND	YUKON
WESTERN HEIGHTS	WHITESBORO	WOODWARD	ZANEIS
WESTVILLE	WICKLIFFE	WRIGHT CITY	ZION

## Career and Technology Centers

AUTRY	GORDON COOPER	METRO TECH	RED RIVER SCHOOL
CADDO-KIOWA	GREAT PLAINS	MID-AMERICA	SOUTHERN OKLAHOMA
CANADIAN VALLEY	GREEN COUNTRY	MOORE-NORMAN	SOUTHWEST
CENTRAL OKLAHOMA	HIGH PLAINS	NORTHEAST	TRI COUNTY
CHISHOLM TRAIL	INDIAN CAPITOL	NORTHWEST	TULSA
EASTERN OKLAHOMA COUNTY	KIAMICHI	PIONEER	WES WATKINS
FRANCIS TUTTLE	MERIDIAN	PONTOTOC	WESTERN

## Colleges and Universities

CAMERON UNIV	N OKLA COLLEGE	OU HEALTH SCIENCES	TULSA COMMUNITY COLLEGE
CARL ALBERT STATE COLLEGE	NE OKLA A&M COLLEGE	REDLANDS COMM. COLLEGE	UNIV CENTER AT PONCA CITY
CONNORS STATE COLLEGE	NE STATE UNIV	ROGERS STATE UNIV	UNIV OF CENTRAL OKLA
EAST CENTRAL STATE	NW OKLA STATE UNIV	ROSE STATE COLLEGE	UNIV OF OKLA
EASTERN OKLA STATE COLLEGE	OKC COMMUNITY COLLEGE	SE OKLA STATE UNIV	UNIV OF SCIENCES & ARTS
LANGSTON UNIV	OKLA PANHANDLE ST UNIV	SEMINOLE STATE COLLEGE	W OKLA STATE COLLEGE
MURRAY STATE COLLEGE	OKLA STATE UNIV	SW OKLA STATE UNIV	

## Other Entities

BOARD OF PRIVATE VOC SCHOOLS	EPIC CHARTER	OFFICE OF EDUCATIONAL QUALITY AND	STATEWIDE VIRTUAL CHARTER SCHOOL BOARD
BOARD OF REGENTS FOR HIGHER ED	FIVE STAR INTERLOCAL	OKLA SCHOOL OF SCIENCE & MATH	STREET SCHOOL
CAREER TECH	HARDING CHARTR PREP	OKLA STUDENT LOAN AUTH	TEACHERS RETIREMENT SYSTEM
CHOCTAW NATION INTERLOCAL COOP	HARDING FINE ARTS CENTER	OKLAHOMA YOUTH ACADEMY CHARTER	TRI-COUNTY INTERLOCAL CO-OP
DEBORAH BROWN	INDEPENDENCE CHRTR MIDL SCHOOL	OMES	TULSA SCHOOL OF ARTS& SCIENCES
DEPT OF CORRECTIONS	JOHN REX CHARTER ELEM SCHOOL	OSAGE COUNTY INTERLOCAL COOP	UNIVERSITY CENTER OF SOUTHERN OKLA
DEPT OF EDUCATION	KIPP REACH COLLEGE	QUARTZ MOUNTAIN	WESTERN VILLAGE CHARTER
DEPT OF REHAB SERVICE	KIPP TULSA COLLEGE PREP	REGIONAL UNIVERSITY SYSTEM OF OKLA	